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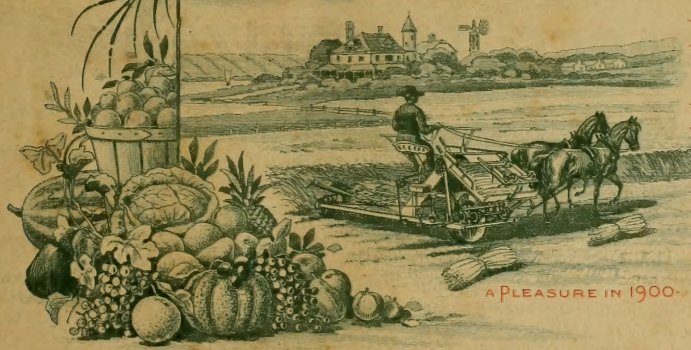
60TH ANNIVERSARY No OF

THE SOUTHERN PLANTER

A MONTHLY MAGAZINE.

DEVOTED TO

PRACTICAL AND PROGRESSIVE AGRICULTURE, HORTICULTURE, TRUCKING, LIVE STOCK AND THE FIRE SIDE.



A PLEASURE IN 1900.

OFFICE 28 NORTH 9TH ST. RICHMOND, VA.

THE SOUTHERN PLANTER PUBLISHING CO. PUBLISHERS.

J. F. JACKSON, Editor and Gen'l Manager.

SUBSCRIPTION: 50¢ PER YEAR IN ADVANCE

A NEW MOVE IN THE EDUCATIONAL LINE.

The B. F. Johnson Publishing Company, of Richmond, Va., have practically inaugurated a new move in preparing and placing on the market a series of text-books prepared especially with a view to cultivating mind, heart, and body. In establishing their educational department, they laid out definite plans, and in the publication of text-books have insisted that the books prepared by their authors and placed on the market should come within the limits of those well defined plans.

Their first effort was in the line of United States Histories. Mrs. Lee's History proved to be one of the most popular and satisfactory school histories ever published. This was quickly followed by Southern Literature, by Miss Louise Manly, and Southern States of the American Union, by Dr. J. L. M. Curry. Johnson's School Readers, Carr's and Graham's Arithmetics, Hart's Grammars, Smithdeal's Slant Writing Books, the Johnson Vertical Writing Books, Moses' Phonetic Reader, the Carnefix Reading Chart and Duplicate Primer—all were prepared thoroughly in accord with their plan for the cultivation of the intellect, and, at the same time, the highest aims and objects in life are kept in mind and promoted so far as it is practicable in text-books of this character.

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Our Sixtieth Anniversary.

Sixty years ago this month THE SOUTHERN PLANTER made its bow to the public and asked for recognition as the exponent of sound agricultural teaching for the farmers of Virginia and the South. In the prospectus published in the first issue, the editor, Mr. C. T. Botts, said: "Rejecting long and even perhaps able essays, he designs to make his paper the medium for the promulgation in a condensed form of the observations and deductions of practical men. * * * * He only proposes to introduce into his native State a plan much used and highly approved to the North—that of publishing an agricultural paper at so small a price as to bring it within the reach of all. * * * * Whilst nature has made the people of the South peculiarly agricultural, *and whilst we are the great producers of America,* the fact is undeniable that in economy and management we are in many respects inferior to our Northern brethren. Nor is it to be wondered at, for 'necessity is the mother of invention;' and if the frigid climate and unyielding soil of the North compel them to arts in themselves advantageous, why should not we, the children of a more indulgent parent, avail ourselves of the fruit of their labor? The truth is, that an extreme indulgence of nature has blunted our perceptions and, like other spoilt children, we are upon the whole hardly benefitted by the indulgence. To collect, examine, select from and report to his readers in a clear, simple and condensed style all the information to which, by the most untiring exertion he can gain access, will be the aim and object of the editor."

On this basis THE SOUTHERN PLANTER started out on its career. How true it has been to its mission is evidenced by the green old age to which it has attained—an age greater than that attained by any other agricultural journal in the country.

THE PLANTER first appeared in the form of a small octavo of sixteen pages, and in octavo form with a varying number of pages it continued to be published (with one short interval as a folio) until May, 1889, when it passed into the hands of its present owners and was placed in charge of the present editor. At that time the form was changed to a quarto of fifty pages per month, thus more than doubling the reading matter of each issue. The price has varied from $1.50 down to the present price of 50 cents per year.

It has in its long history passed through many changes of ownership and through periods of prosperity and adversity, but amidst all these has continued to be published where first established, and to-day enjoys a larger share of public support than ever before in its history. The actual paid subscribers on the books are now more in number than ever before, whilst the advertising patronage is one of which any journal may be proud. Whilst we naturally rejoice in the fact of the present popularity of the journal after two generations of life have passed over it, we are none the less conscious that to maintain and enhance that popularity, and to ensure for the journal a continued lease of existence even longer than that already enjoyed, we must continue to make it a vital necessity for every progressive Southern farmer. This is our aim and intention, and the daily accession of subscribers to our list assures us that we are succeeding. At 50 cents per year no farmer can say that he cannot afford to take the journal, and that he will receive more than value for his money no one who reads it can deny.

We cannot conclude our introductory notice of this special issue without tendering to our readers and supporters our warmest thanks for the support they have given us in the past sixty years, and with the expression of the hope that they will continue this support and help us to obtain a greatly increased number of subscribers, we extend to one and all a wish for a happy and prosperous New Year.

This special issue will be found to be largely of a reminiscent character as befits the occasion of its appearance.

59662

The First Volume of the Planter.

In turning over the pages of the first volume of the *Planter*, we have come across the following items, which we think will be of interest at the present time, and especially so to some of our old subscribers, some of whom have been on the list since the first issue was made.

The Henrico Agricultural Society.

On the second page of the first number (January, 1841), we find the following:

"We are happy to have it in our power to announce to the public that an agricultural and horticultural society, under the above title, has been formed in this city. The society met in December, adopted a constitution, and appointed its officers. The Rev. Jesse Turner, well known for his skillful and successful farming, was chosen president, and Anthony Robinson, Jr., elected secretary and treasurer. * * * * Exhibitions will be made and premiums awarded semi-annually in May and October. The president will deliver an address at the first semi-annual meeting. * * * These associations are the very soul of Agriculture to the North, and the wonder has been that the capital of Virginia could heretofore boast of nothing of the kind. One of the first fruits of the establishment of this society has been the adoption and presentation to the legislature of a memorial asking for the establishment of a board of agriculture."

In the April issue 1841, we find the following article:

Board of Agriculture.

"Of all the classes in our community the first in numbers and importance is, undoubtedly, the agricultural, and yet we are about to record the *first* legislative enactment in Virginia intended for their peculiar benefit. We are no great admirers of legislative interference generally in any branch of business, and think that most frequently the favors of the legislative body are as ill-timed and injurious as the carcass of the ass in the fable—dissatisfying and destroying where they are intended to please and preserve. But with the following we have no fault to find; it proves at least that Virginia is aroused to the importance of her agricultural interests. Indeed, if the selections are well made, and gentlemen can be found (which we doubt not) who will discharge a laborious duty faithfully for the honor alone which it will bring to them and the benefit it will bestow on their country, then inestimable are the advantages to be derived from the following:

"'*Bill to establish a Board of Agriculture.*

"'Whereas it is represented to the General Assembly of Virginia that the agricultural community have various interests requiring the fostering care of the State, which should be extended to them according to some system approved by observation and regulated by experience. And whereas it appears to the General Assembly that these ends would be promoted by the establishment of a board whose duty it should be to present to the legislature from time to time a general view of the agricultural statistics of the Commonwealth, to inform the public of the progress of improvement, to communicate such facts as, when collected and digested, may promote the agricultural interests of the State, and to suggest such measures for the adoption of the General Assembly as the aforesaid board may deem proper for the development of the resources and the protection and advancement of that important branch of industry in the Commonwealth;

"'Be it, therefore, enacted, That a board, to be called a Board of Agriculture, shall hereafter be constituted, to consist of eight members, to be appointed triennially by the executive of the Commonwealth, of whom two shall be selected from each of the four divisions of the State as specified in the second section of the third article of the Constitution for the apportionment of representation in the House of Delegates, any three of whom may constitute a quorum for the transaction of business.

"'Be it further enacted, That it shall be the duty of said board to present annually to the legislature a general view of the condition of agriculture in the State; to report the nature and quantity of the agricultural staples, so far as they may be able to ascertain the same; to collect and digest such facts in relation to the improvement and cultivation of the soil, and the best modes of preparing its various products for their appropriate uses as they may think would afford useful information to the agricultural community; to report, as far as they may ascertain the same, the relative degrees of encouragement afforded by the demand of foreign and domestic markets for the various agricultural productions of this Commonwealth, and to suggest to the legislature such measures as they may deem desirable for the development of the resources and the promotion of the general interests of agriculture in this Commonwealth.

"'And be it further enacted, That it shall be the duty of said board to hold one session in each year, at such time and place as may be fixed upon by the board, with the consent of the executive.

"'This act shall be in force from the passage thereof.'"

This bill was passed on the 20th March, 1841.

From a subsequent notice in a later issue we find that a board was appointed under this bill, and held a meeting, but in the February issue of 1842 we find the editor saying:

"We have awaited with some anxiety the action of the legislature upon the bill proposing to pay the expenses of the members of our Board of Agriculture, for we were well assured that without the passage of that bill we would never see another meeting of that board. It was asking rather too much, even of Virginia liberality, that gentlemen should leave their homes to come here *at their own expense* for the public good, and they very naturally felt that the honor of a station which was so little appreciated would hardly compensate them for the sacrifices it involved."

(Thus early in its career the Legislature of Virginia failed in its duty to the farmers. It sought to get something for nothing, with the usual result. It has practically continued this policy to the present time, with the result that Virginia is behind other States with less natural advantages than we possess.—Ed.

The Southern Planter.

DEVOTED TO

PRACTICAL AND PROGRESSIVE AGRICULTURE, HORTICULTURE, TRUCKING, LIVE STOCK AND THE FIRESIDE.

Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, January, 1900. No. 1.

Farm Management.

WORK FOR THE MONTH.

Twelve months ago, we were able to congratulate our readers on the much better prospects with which the year opened than we had been able to do for many years. This year we are able to say that the nation never entered upon a year with such wonderful pros pects before it. Every branch of industry is as busy as possible. The man who is idle now is idle because he does not want to work. Labor is in demand everywhere at rates of wages in excess of those previously paid, and the demand for manufactured goods of all kinds is greater than ever before experienced. New plants are being erected all over the country, and as fast as completed are put to work, and yet the demand is for more. In all this prosperity the farmer must participate. Busy workmen with good wages are good customers for all the products of the farm, and with the increased demand comes better prices. Beef, mutton, hog, and dairy products have already seen a large advance in price, and the end is not yet. Our stocks of animals have been so reduced during the long period of depression that the demands of a population of eighty millions of busy people cannot be met, except at largely increased prices, until our herds and flocks are largely increased. This increase is a work which cannot be accomplished in a few months, or even in a few years, with constant and rapid increase in our population and its coincident increased consuming power. The indications, therefore, are for at least a maintenance of existing values, and possibly, yea, probably, of better prices. Like conditions also affect the prices of staple crops—though here the possibilities of greater production are so easy that supply will sooner overtake consumption. Foreign demand is, however, now so much greater than ever before that it may fairly be expected that even increased production will not cause a fall in prices. The South is now awakening to a sense of its possibilities and becoming more than ever a manufacturing section. The Southern farmer also is awakening to a sense of his opportunities. He is every day becoming more a producer of diversified crops, and a manufacturer of those crops into finished products. These are cheering signs of better times in future. The day when grain could be produced and sold at a living profit in the South and East has gone by. It must now be made into beef, mutton, pork, milk or butter, in order to be sold to advantage, and this business can be done in the South with greater profit than in any other section, from our long mild seasons, possibilities of crop production, and nearness to markets, and to dense populations of busy workers. Even the cotton crop is shortly destined to be manufactured where grown, greatly to the advantage of the planters. Tobacco, the other staple of the South, is already largely manufactured here, and factories are springing up on every side. In times of prosperity this luxury is always in increased demand, and prices are now good for all good tobacco. The complaint frequently heard that so-called monopoly is killing the market for tobacco has little found-

ation in fact. Good well grown, well cured tobacco of the type called for on the markets is to-day selling for higher prices than ever before. The difficulty is that so much of the tobacco brought on the market is neither well grown nor cured into the type the market calls for. Tobacco growers and curers must learn to avail themselves of the teaching of science and thus be able to make with certainty what the market calls for. There will then be no cause for fear but that a good and paying price can be secured. The tobacco crop is one most exacting in its requirements of technical knowledge to be produced successfully and profitably, and the sooner growers realize this and act upon it the sooner will they cease to have cause of complaint. The fault is more with themselves than the market.

We propose to continue our work of helping the farmer to meet these requirements of the times by bringing before him pointedly each month the work which ought then to have his attention. In the past we have been repeatedly assured that the article, "Work for the Month," in each issue, was alone worth more than the yearly cost of the journal. Farmers are so apt to procrastinate and put off from day to day the work that ought to be engaging their attention that a reminder of that work is a most necessary part of the duty of an agricultural editor. We have always striven to so time our remarks on this subject as to make them cover the whole field of the journal's circulation. In the later sections of our field our advice may sometimes appear premature, but whilst this may be so, it yet has the advantage of calling attention to the subject in time, and once attention call-d to it the good farmer need only exercise his discretion as to the time when he will commence the work. Whilst there is always a right time and season to do all work on the farm, there are few crops that are injured by the land being prepared too soon to receive them. It may necessitate extra working of the land where this is done, but the fault of Southern farmers is almost universally that they do not prepare their land sufficiently or carefully enough.

The work that can be done on the farm this month outside of giving that attention to the live stock which they will require in order to keep them constantly improving in condition, and using the feed profitably, which work of itself, where a number of cattle is kept, is one which requires vigilant watchfulness and the exercise of discriminating judgment in compounding the rations, is usually very little. Labor is always disorganized at the commencement of a new year, and this, with the conditions of weather and of the land, are not conducive to much progress being made. If the weather continues fine and dry, plowing may and should be pushed forward. Land which has been out of crop, or new land intended to be brought under cultivation, should be cleaned up. In doing this, see that what is done is done thoroughly. Do not leave stones and stumps on the land to be hindrances to work later. Ditching and draining may be done, and the repairing and building of fences be undertaken. Farmyard manure should be got out as made on to the wheat, winter oats, and corn land, though we do not advise the top dressing of wheat or winter oats when the land is frozen, as it tends to keep the frost in the land. Use the manure that has been most rotted for dressing the wheat and winter oats, and the fresh unfermented manure for the corn crop. If manure has to be stored in the yard, see that it is placed where it does not catch the water from the roof of the buildings, and let the site of the manure heap be where the liquid portion will be conserved and not drain away. Acid phosphate and kainit may be profitably mixed with the manure in the heap as it is made, and this will both save labor later and make these constituents more available for the support of the crop.

Make your plans for the crops of the year, and in so doing take care to follow a system of rotation which will not bring two crops of a like feeding character on the same land two years together. There is no necessity to leave land without a crop in order to improve it. Indeed, it is impossible to improve land as it ought to be improved under such a system. All land not under a crop of some kind is land wasting in fertility in the South. The washing rains and the hot sun will carry off more fertility than most crops. In determining upon the crops to be grown make it a point to be certain that you will raise all the supplies needed for yourself and family and your stock at home. Any surplus beyond this can be readily sold or be otherwise utilized in feeding more stock for which the demand is likely to be good. The value of forage crops is only now beginning to be realized in the South. In a few years' time we shall see the South a great stock-raising and feeding country, and with this and the demand in the great cities for feed for horses and mules there will be a constant demand for all the fine forage crops that can be raised. The man who puts himself into a position to meet this demand is going to do a wise and profitable thing. Already we know of many who make more clear money out of their forage crops than out of their grain crops.

See that your hogs are slaughtered as soon as the weather is cold enough, and be careful to have all the animal heat out of the carcass before salting. Neglect of this is the cause of much spoiled meat.

See that the ice-house is filled at the first opportunity. It is not always that a second one comes in the South.

Library
N. C. State College

Take an inventory and valuation of all you have on the farm on the 1st of January and then keep a strict account of all your receipts and payments during the year. In this way at the year's end it will be easy to know whether you have farmed profitably. It is also a wise thing to keep an account with each crop, so that you may know which has paid you and which has cost more than it has realized.

NECESSITY FOR INOCULATION WHEN STARTING WITH LEGUMINOUS CROPS.

Editor Southern Planter:

As it is now an established fact that leguminous plants obtain a good share of their nitrogen from the atmosphere gratis, and that having been hitherto the most costly and fleeting constituent of commercial fertilizers, as well as the most generally lacking in worn soils, it is high time that farmers remodel their system in such a way that they can take advantage of this, the greatest and most important discovery of modern times. But, at the very outset, there are details to be considered before attempting to grow legumes, otherwise there will be only discouragement and disappointment. With legumes, there is something more to be done than to prepare the land and sow the seed. The land or the seed, or both, must be "inoculated" also, unless *some legume of the same or a closely related species has been grown on the land, or even near by, very recently.* This is a matter of the very first importance, as I have learned to my cost.

The fact is, leguminous plants obtain their nitrogen from the air through the agency of the little nodules which grow on the roots of all of them; and it seems each species of legume has a nodule peculiar to itself, and some closely allied species, garden peas and vetches grow the same tubercle, as also red and crimson clover, and so on. But this is a new field not fully explored, and it is very essential to success with legumes that it be fully investigated. Otherwise, as I said before, there may be only disappointment for would-be experimenters.

It has been observed a thousand times perhaps that it is hard to start red clover in a new country, and farmers, in ignorance of the real cause, overcame it by "main force and awkwardness," namely, applying heavy doses of nitrogenous manures until the land and the farm became inoculated slowly, naturally, with the necessary parasitic microbe. Or by sowing clover on good land and having the first crop almost a failure, after that it grows all right.

In the West, when prairies are first brought under cultivation, it is sometimes very hard to start clover, and I suppose it would be impossible were it not that the seed carries always some of these microbes, which multiply very fast, or they may come from the wild "Buffalo" clover, which is found far and wide on this continent. I have tried red and crimson clover several times here in Alabama, and though I call myself an old hand at the business, I failed, but am now convinced of the necessity for inoculation of the seed and the land while starting with it, and I often wonder I did not suspect the cause before, for I have in memory a whole array of facts clearly pointing that way. In 1845, a large field of good limestone land, on one farm, in the cool moist climate of the old country, failed to take with clover, unaccountably making only a poor meagre growth, which would not be there considered even half a crop. The land had never had clover on it before for many years. Yet that was the ideal clover land and a clover climate. I have seen clover in that neighborhood cut three times in one summer, each time a good crop. Yet even there you see how hard it was to get well started, and the instance cited is one of very many. It was no trouble to get a stand of clover on the "highlands" of Gloucester county, Va., about 25 or 30 years ago—that is, wherever it had been marled, but it was almost always a poor, meagre growth at first; but on fields recently in clover it did finely. In 1874, I broke a field which had lain out to grow pines since the breaking out of the civil war, and another close by, which had been under cultivation and in clover in 1871; both were good fields, about 30 acres each. No. 1 gave as good corn as No. 2, and almost as good wheat, but the clover on No. 1 was a miserable growth, whilst that on No. 2 was splendid—as heavy as I care to cut.

I sowed clover at different times here in Alabama, and it did no good, most of it dying the first summer, and I gave it up as a bad job, but I found that a stool here and there grew and throve finely, and when it came to sowing time again, it did well where it had been in clover before, and *nowhere else.*

On a distant part of the farm an old log house used to stand when I bought, and some one who lived there used a bale of Northern hay, the seed from which scattered around, so I found timothy, red top, bluegrass, together with red and white clover, growing in the fence corners. I had it in wheat last summer, and sowed it with red clover last spring. To-day there is as fine a stand of clover as I could wish near the place where clover grew before, and only an occasional stool elsewhere. The *former beaded all over with tubercles,* and only rarely are they on the latter.

In a little field near the last described, also sown with clover last March, there remains only one real good patch, and that used to be covered with the wild "Buffalo" clover when I took it into cultivation a few years ago.

I could cite many other cases in point, and I more

than suspect that the lack of proper inoculation is a frequent cause of failure, or partial failure, with many other leguminous plants.

I sowed a little patch of winter vetches about five years ago, but it was such small stuff I did not think it worth bothering with. Being no such growth as I was accustomed to, I gave it up, but it has since re-sown itself, and is well stocked now with little tubercles the size of a pin's head, and I expect to inoculate some sand vetch with it, which, up to date, is destitute of nodules.

Soja beans were better stocked, I found, than any new legume I tried for the first time, and I only wish I could get the seed of some large late sort to suit our long-growing season. The small yellow kinds blossom too soon. I strongly think that even "cow" peas would be benefited by inoculation when sown on a new field—this, notwithstanding they are raised on every farm in this valley. A careful and extended examination of their roots disclosed the fact that natural inoculation with them is by no means so universal as one might infer, which surprised me. Soja beans seem more perfectly adapted for our climate than even peas. It may be that the same microbe infests both species, which may account for their being so well stocked with nodules.

Velvet beans made a prodigious growth, and the nodules on them were quite large, but the land was rich and had been in peas the previous year. Could they have been inoculated by the peas? or was the great growth due to rich soil? I may say, in passing, no legume I have ever tried promises me so much as the soja bean. For whilst I have raised pea-vine hay for years, and never failed to save it but once, it is hard to save, owing to the thick, fleshy stems, which hold juices so long. This is especially the case with the "Unknown pea," and I have determined to drop that variety, except for plowing under. The smaller varieties sown thickly do not grow such enormous stems, hence are more easily cured. But the soja bean can be cut by my binder, and, tied in small sheaves, can be shocked in such a way that the air can pass through and yet be safe in case of a bad rain-storm. I can and do protect pea-hay by capping the shocks with wild hay; but the peas lie too close, hence are apt to mould. As to Prof. Massey's rule about mowing it away when water cannot be squeezed out of the stems: When it gets that dry, he must be a very poor hay-maker who cannot save it, mow or no mow, though I must say his plan gives far the nicest, greenest hay possible, and oh, what splendid feed it is! But I find every animal on the farm prefers soja beans to any ration I know of. The very wild rabbits love them; and if there be any reliance on analysis, sojas are far richer and more fattening feed than peas. The latter, I know by experience, are splendid hog feed, in conjunction with corn. But by themselves, they are not good fatteners.

Velvet beans are not open to the objection urged against peas—namely, thick fleshy stems. But while I can cut them with my mower, Hercules himself could not fork them on a wagon, much less off it. But they suit my bottom lands—thus far at least—better than peas, so I will raise some as improvers.

Here is a very promising field for investigation and experiment. I hope some of your correspondents will give it the attention it deserves.

Clay Co., Ala. JOSHUA FRANKLIN.

CURING PEA-VINE HAY.

Cotton Rust—Damage by Beetles—Apples, &c.

Editor Southern Planter:

In regard to Mr. Shoolbred's criticism (page 528), I would say that the character of the crop has as much to do with the time it will take to get the hay into condition for housing as anything else. Grown on thin land with light stems, the vines can go in much sooner than those grown on stronger land, and with stems as thick as one's finger or more. The test I have often mentioned of twisting a bunch in the hand and finding no sap running to a hard twist will determine the condition better than any arbitrary time rule. I have had hundreds of letters detailing perfect success in the curing, some stating that but one day seemed sufficient, and others that several days were required to get the proper condition. It was a difference not only in the weather but in the character of the crop. Then, too, I have had a number of letters saying that the hay was moulded and some that it was heated soft and mushy. Now, where hundreds succeed in a certain method, all should succeed. Why some fail I cannot, of course, say, unless familiar with their method of procedure. One of the hardest things is to get men to understand the conditions of success in any practice new to them. I tried once at a meeting of farmers to fully explain the method of curing cow-pea hay, and a month or so after that we had a Farmer's Institute in the same town. At the Institute a farmer came to me and asked if I did not say cut the vines and haul them at once into the barn. I said certainly I said nothing of the sort. He then said that nearly every one who heard me a few weeks before had that idea about it. Then I was obliged to go over the whole matter again till they seemed to get it right. This fall, a very intelligent man, near this city, met me and said, "That barn-curing plan is all right; I put mine in as fast as cut, and the hay is splendid." He understood me just as the others did,

but the only reason why he succeeded was that his peas were in a more mature condition than I would usually cut them, and cutting in dry and hot weather, the immediate storing did no harm. But if he were to go out among the farmers and tell them that he cut his peas and put them in the barn at once, somebody would go to work and cut a lot of rank green peas and try the same plan, and would perhaps rot the whole or make silage of them, if the barn was tight enough. No matter what a man is doing in farm practice he can give no general rule that will fit every case of weather and condition of plant, and we must assume that farmers are wise enough to use a little common sense. If any one wishes to see the results of in door storing, I would like to show him into our station barn here and let him examine the pea hay my horses are eating. It is perfectly green in color, but cured as completely as any hay can be, and is just like the sample that Mr. Jackson said looked more like English hay than anything he had seen in America.

We have here had more damage done by the tree pruning beetle, Oncideres Cingulatus, than for several years. They are particularly attracted to the pecans and pears. In fact, they are particularly fond of pruning all kinds of hickories. Usually they do not trouble fruit trees a great deal, but when they do the pear is the tree attacked. I wish here to say to those who have noted the ravages of this insect, that they should gather up and burn all the trimmed branches, for the beetle does not cut these branches off merely for the fun of the thing, but before he, or rather she, cuts them off she is careful to deposit her eggs at the joints along the shoot, so that the larvæ may have the decaying bark to feed upon. Hence, burn all the cut branches and destroy the larvæ. An avenue of young pecan trees here had some of the tops almost entirely pruned off and turned as neatly as in a lathe.

I would like to say to your subscriber from North Carolina, who says that cotton always rusts for him after clover, that in this part of the State such a result is never observed. But our red clay is abounding in potash, while the sandy lands east of us, where this complaint usually comes from, is deficient in potash. Now, if he has the real rust, and not the red mite, potash in the form of kainit will probably cure the tendency; but most of the rust specimens sent us from the Eastern part of the State were not rust produced by fungus, but were the result of the breeding of the red mite or red spider, as it is called.

We are going to test the fall planting of Irish potatoes, and can see no reason why in this climate they should not succeed as well as by planting in February, when the land is seldom in the best condition for preparation.

I wish that our Virginia friends could have seen the apples sent from Yancey county, in this State, to the department at Washington for preservation for the Paris Exposition. I never saw finer Albemarle pippins in Albemarle than were in this lot. If our mountain people could only learn to handle apples, and then our railroads would have a little of the liberality of the C. & O. in Virginia, we could beat the world growing apples in Western North Carolina. But until the railroads learn to foster the industry by reasonable rates there will be little encouragement for growers in North Carolina. It costs as much to get a barrel of apples from our mountains west of the Blue Ridge as it does to send a barrel from Albemarle to Liverpool. Last week one of our grocers showed me a barrel of apples he had just received from Mount Airy, on this side of the Blue Ridge. He said that the freight was 84 cents, while he could get a barrel from Boston for 75 cents. Our mountain country in North Carolina, between the Blue Ridge and the Great Smokies, I verily believe is the finest apple section in the Union, but orcharding and packing are both unknown arts there, and the few that take some care of their trees and are trying to learn to handle fruit properly, have no encouragement because of the robbery practiced by the railroads. Perhaps the railroads may learn their own interests by the time the people are educated to better methods.

W. F. Massey.

GRASS CULTURE.

Editor Southern Planter:

Standing on the pinnacle of the Nineteenth century and looking backward, we see the toiling masses struggling against the consequences of many errors. Misled by the "Ignis Fatuus" of the all-cotton craze, they have hewn down the forests, scratched their soil, misguided the rain water, and wrought general devastation. Heaven's great blessing perverted, became man's great curse. With incredible swiftness they changed a glorious heritage into a widespread scene of washed and gullied hillsides and naked, barren fields. Having spent our manhood's prime in killing grass, we now look with dismay upon the wreck and ruin our hands and plans have wrought. A sad and sickening sight it is.

But with our mistakes have come lessons of experience, and the light of Science. "A change is coming over the spirit of our dreams." Looking around us to-day, we catch the gleam of hope and see that advanced men are planning better and wiser things.

The horizon of the future glitters with radiant stars of hopeful inspiration.

Instead of Killing, Let Us Grow Grass.

In our deadly foe of the past we may find our best friend of the future. "All flesh is grass," and from grass all flesh is fed. Hence, in killing grass, we have been destroying the very foundation of permanent prosperity. We can never become permanently prosperous with naked hills and gullied fields. They must be clothed with the carpet of verdure which Nature intended them to wear and fitted them to bear. This is the unanimous voice of historic teachings. Our wonderfully varied resources have led us into a line of policy tempting in the beginning, ruinous in the ending.

In cattle growing we may find the road to prosperity. But cattle must have food. The more abundant the food supply, the greater profit there will be in cattle raising. But the food must not only be abundant, it must be cheap. Hence, in the production of cheap food lies the ultimate key to the whole situation. Can we find and use this key? Grass growing is the key; not only permitting grass to grow, but helping it to grow. How shall we do this? In several ways.

First, by removing all the stumps, stones, briars, bushes and noxious weeds from our pastures and hayfields. Then run a subsoil plow, every twelve inches, deep down into the clay. Spread manure of any kind you have, and supplement this with acid phosphate and kainit, spread freely broadcast, not in drills. If you have no manure, use more phosphate and kainit. Run over with a light smoothing-harrow and follow with heavy roller.

Old Bermuda fields and other waste lands, treated this way, will respond marvellously.

Another way is this: Select any suitable field and break the subsoil in the fall. In April harrow repeatedly until smooth. Crab grass will come without seeding. But, while harrowing, work in a liberal supply of acid and potash, with or without home-made manures. Another way is to follow your grain crops, as soon as cut, with a good seeding of peas and sorghum mixed. Fertilize as above. When the peas are in pod cut and cure.

Thousands of acres now in waste, and worn, would soon be yielding a handsome income if treated in this way. The cost would be very little, the profit very great. We know that it sounds strange to many if you talk about manuring grass, but it will pay better than manuring cotton.

Old habits are hard to break. You have so long been accustomed to killing yourselves all summer—killing grass to grow clean crops to sell at less than cost to get a little money to buy some dead grass, that it has become second nature. But all the time you have been crossing the order of Nature. This is by nature a grass-producing land. And a grass producing land should be a cattle-growing land.

Then there are more than a score of cultivated varieties of grass that will grow readily, and pay well for the growing: orchard-grass, timothy, the fescues, Herds grass, Johnson grass, and on and on. Turn your thoughts to grass, and grass will turn your labor to money.

James B. Hunnicutt.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Tobacco Stems—Bermuda Grass—Draining—Apples and Cedar Trees.

(1) Please give me the manurial constituents of tobacco stems.

(2) Do you think Bermuda grass suited to this section, either for gray upland (tobacco land) or rich creek bottoms?

(3) Will upland, naturally well drained, be benefitted by under-draining? I read so much about under-draining conserving the moisture in case of drouth, leads me to ask this question.

(4) Will the spores of disease which are contained in the yellow balls on cedar trees affect apples 300 or more feet away (see page 395, *Southern Planter*, September, 1897—referring to cedar trees being injurious to apples).

(5) I notice you and others advise to always sow a cover crop on fall plowed lands to prevent leaching. In December and January we can frequently plow land intended for spring crops, but it is too uncertain to sow any grain in those months; should we plow then and omit the cover crop, or forego the opportunity to plow?

C. Retrac.

Henry County, Va.

(1) Tobacco stems have 2.35 per cent. nitrogen, 8.2 per cent. potash, 0.70 per cent. of phosphoric acid. These are, of course, not at once available, as the same matters would be in a commercial fertilizer where the articles are soluble, as they are in the form of organic matter that must undergo decay and nitrification before the nitrogen becomes of use to plants.

(2) No; by no means. In your elevated section it would be simply a pest. You can grow grasses better adapted to your needs. The place for Bermuda is in the sandy soils of the cotton belt, in the coast region of the South. There it flourishes as it will not with you, and is there the most valuable of pasture grasses. But in all the upper country you do not need Bermuda, and it will not give the crop with you that it does in the low country.

(3) It depends on the character of the soil. In the heavy glacier clays of New York and Pennsylvania, they have found under-drainage necessary on their highest lands. But our Southern upland red clay is of a different nature, and what it needs is more a retention of moisture to ward off droughts than anything else. I have long thought that the best improvement that could be made in our mangum terraces would be to dig deep ditches along the upper side of the terrace banks, and into them put the surface rocks out of the way, and fill them below the line of plowing, so that they could form reservoirs for the retention of the water and let it gradually soak into the soil down the hill. No under-drainage is needed on Southern uplands that I ever saw, but on white-oak flats and many bottom lands there would be a great improvement by tiles.

(4) Yes, they will affect the trees half a mile away, if the wind is right when the spores are ripe.

(5) If your land freezes hard in winter and stays frozen it will be of advantage to plow a clay soil and take the risk of any leaching. But here, where the soil seldom freezes more at night than thaws out by the middle of the next day, and where we have far more rain than frost, there is a decided disadvantage in fall plowing, if the land is to be left bare in winter. The fall, however, is the time of all times for the deepening of the soil by the subsoil plow, and it should not be neglected. One must judge from his local conditions what is best for him. Better try to get the land plowed early enough in the fall to sow a cover crop, and your spring-planted crop will be all the better for the plowing and the cover. W. F. MASSEY.

Corn and Cotton Fertilizer.

Last year I compounded a mixture of 400 pounds cotton-seed meal, 400 kainit, and 1,200 dissolved bone per ton. Of this I put on both corn and cotton before planting 300 pounds per acre. On the corn I put at first plowing 100 pounds cotton-seed meal, throwing a furrow from the corn and dropping the meal at each stalk (2½ feet apart) and following with a sweep. On the cotton I put 50 lbs. nit. soda, dropping it at each stalk soon as the cotton was chopped to a stand. Was the nitrogen in excess of the other ingredients? If so, what amounts of C. S. M., K., and D. B. must I put in *the ton* so as to use 300 lbs. of the mixture per acre, and putting, as I do now, the inter-cultural application of 100 lbs. meal to the corn and 50 lbs. nit. soda to the cotton, and still have a well-balanced ration? At what stages of the plant is it best to make the summer applications?

I know your views about applying commercial fertilizers to corn, but we must have an abundance of corn, and cannot make enough manure. With us corn always responds favorably and payingly to cotton seed, which is rich in nitrogen. But my objection to it is that it sprouts with the corn, and it is impossible to cover it and not cover the corn. *Meal* acts more promptly, but hasn't the staying properties of the *seed*. I think my *cotton* fruits better with heavy doses of dis. bone, but I do not know if it is too heavy for the *corn*, and if it will be there for the following crop in the rotation, which is oats. SUBSCRIBER.

Richland County, S. C.

You probably had more nitrogen than was needed by the cotton, and corn does not need heavy applications of nitrogen if the land is well supplied with humus, since the corn plant grows through the long hot season, when the nitrification of organic matter in the soil is most active. Having the cotton seed on the place, there is no possible objection to using it on the corn crop. What I have said is that I could never make the cost of purchased commercial fertilizers on corn. A rotation that brings the corn crop after a crop like peas or crimson clover is far better than depending on *purchased* fertilizers. The place for the cotton seed is not under the corn—and, in fact, that is not the place for the manure for corn of any kind. If spread broadcast on the land, the seed that sprout can soon be destroyed by cultivation, and there will be no loss to the corn crop. With the wide-reaching roots of the corn, there is no danger that they will not reach the seed at a time when they are needed most. If you will send to the Secretary of Agriculture and ask for a copy of Farmers' Bulletin No. 48, on Manuring Cotton, you will get the valuable work that Dr. McBryde did in your State years ago, and that will give you more information about the fertilization of cotton than I could write in several pages of the *Planter*. My own opinion is that a mixture of 1,200 lbs. of acid phosphate, 300 lbs. cotton-seed meal, and 300 lbs. kainit would be about right to use, at rate of 300 lbs. per acre, under the cotton, and then, if you bury cotton seed down the middles, the plants will have the food at fruiting time, and will be able to make a better top crop. But all manure of any kind on the corn crop should go over all the land. W. F. MASSEY.

Best Peas for Green Fallow and for Hay--Best Field Corn--Corn Harvester.

I have four farms in A. A. county, Md., which I propose to improve as speedily as consistent with economy of expenditure, and, as I have been a subscriber to your journal for some time, take the liberty of requesting you to answer the following questions:

1st. What is the best pea or bean to plant between corn rows for turning down for wheat?

2d. What best for turning down and cutting for hay? (part to cut).

3d. What best and earliest "white field corn?"

4th. Is there a successful corn harvester, where obtained, and price?

5th. Whether it be better to turn pea crop down green or let it lie until spring?

My farms are adjacent—combined area 1,227 acres. They are now, and for many years have been, rented.

The lands are fairly productive, but my idea is to combine cattle raising with tobacco. Whether these lands will "grass" or not I don't know. I have a growing stock of grade Herefords which I propose to colonize on these farms, but must first get something for them to eat. We have good supply of water.

These farms lie between South and West rivers, in South river district.

Baltimore Co., Md. ROBERT M. DENISON.

1 & 2. Probably the best pea for your locality will be the black, which you can usually get in quantity in Richmond. But if you have a rank growth of the vines, we would not advise the turning under for wheat, as it must be done so late that the land could not be well firmed with a mass of buried vines, and you would get more wheat from cutting the vines and making hay of them and turning only the stubble.

. Use the best corn you can find that has been grown in the neighborhood. Corn, more than most plants, succeeds best when it has been developed in the climate and soil where the crop is to be grown. There is a disadvantage in sending North and South for seed-corn. Having a good local variety, go to work and improve in and along the lines I have heretofore laid down in these pages, and you can soon have a superior kind for your use. Earliness is not so important with you as further North, for you always have a season long enough to ripen the crop. The important thing is to breed a prolific and sturdy, short-stalked corn that can be planted close enough to get a good crop. Note what Mr. Wood and others have done in this line in Virginia.

4. We use here the McCormick corn harvester, and find that it does good work and saves a large amount of manual labor, leaving the corn tied in bundles that are easily handled, either for ensilage or curing. I cannot say what the price is, but you can find out from any of the implement men who advertise in this journal.

5. I never advise the plowing down of a pea crop green, for, besides the danger of souring the land, there is the further disadvantage that the crop has not finished its work of gathering nitrogen until it ceases to grow, and most of this work is done in the latter part of its life. The best use to make of the cow-pea is to harvest and cure the crop for hay and feed it to stock, so as to have more manure to return to the land. In instances where the land is exceedingly poor, it may pay to let the crop die on the land and plow it in the spring. Sow crimson clover among the peas as they ripen and get in that way a green soil cover for the winter. Your idea of combining cattle-raising with the tobacco crop is a good one, if you get your tobacco land into a regular rotation of wheat, clover and tobacco. The pea crop will help you to get something for the cattle to eat faster than anything else. If I knew in what part of the county your lands are I could possibly advise you better. If in the West River section, there is no land more easily brought to a highly productive condition, while in some other parts of Anne Arundel there are lands as poor as ever held the earth together anywhere.

W. F. MASSEY.

Gas-Lime—Fertilizers.

If Professor Massey didn't know more of the art and science of farming than the average farmer does, then he would not be bothered with inquiries, made by so many who would like to be successful farmers, nor would his name and fame be known through the whole length and breadth of the country.

Farmers should, and do, appreciate the good work he is doing for them by his writings published in agricultural papers, specially *The Southern Planter*, the paper for the Southern farmer, that brings every month to the homes of its readers a miniature Farmers' Institute. The Farmers' Institutes are such an essential part in successful and progressive farming, that in some States—North and West—it is by law made compulsory to hold at least one such Institute in every county in those States. Since it is not our good fortune down here to attend such Institutes in our (Prince George) county, we are always glad when *The Southern Planter* comes around full of useful items for the thoughtful farmer to consider and to learn. To learn is the object in view in submitting a few questions to Professor Massey.

First. *Liming the Soil.*—When, by test made with litmus paper, it is found that the soil is deficient in lime (being sour), will it do to use gas-lime to supply the deficiency; if so (the soil lacking humus), when, and what quantity should be spread upon an acre (the gas-lime being made out of burned and ground oyster shells); or, is there any other lime preparation that will answer the purpose, but is inexpensive?

Second. *Fertilizers.*—The prepared fertilizers in the market are branded as containing phosphoric acid, — per cent.; potash, — per cent.; ammonia, — per cent.; (generally homœopathic doses that neither kill nor cure.) Now, when it is recommended—for instance, to grow a crop of barley—"if the soil should need a *fertilizer*, use per acre 500 lbs. of a fertilizer containing—

Available phosphoric acid.....10 per cent.,
Potash .....12 per cent.,"

what quantity of kainit and of acid phosphate should be used per acre to get the required quantity or per cent. of phosphoric acid and potash here recommended?

I know of no one to submit these questions to, in order to get a reliable reply, other than to Professor Massey; and, as many a farmer is interested in the *fertilizer* subject, it no doubt would be a suitable matter to find or deserve a place in the columns of *The Southern Planter.* J. A. F. SCHEFFELER.

Prince George County, Va.

(1) My advice is, under all circumstances and conditions of soil, to let gas-house lime severely alone.

When fresh from the gas-works it is absolutely deadly to plants. A long weathering may remove the deleterious matter, but it is not as efficient as lime as the freshly water-slaked lime. If you can get oyster shells cheaply and have plenty of wood, you can burn the lime for yourself in an old-fashioned brush kiln. But if your soil is deficient in humus, you will never make it rich by the use of lime. The best action of lime is on a soil abounding in organic decay. Your soil is probably acid from deficient drainage. A light dressing of lime may sweeten it for the growth of clover, but land that is deficient in vegetable matter should never be heavily limed. In fact, I have been for some time past coming to the conclusion that we have been liming too heavily where lime is used, and not liming frequently enough in a rotation where there are plenty of humus-making crops. I believe that it will be found better to apply 5 bushels of lime per acre, and repeat it every year, than to use 20 to 30 bushels per acre at long intervals. We thus get the continuous action of the fresh lime, without so much expense and waste of material at one dressing.

(2) I cannot see how you can get a fertilizer with 12 per cent. potash in a ton from the use of kainit, since kainit contains but about 12 per cent. of potash. To get a high percentage in a mixed fertilizer, it will be necessary to use a more concentrated article, like the muriate, which has 50 per cent. of potash. But 12 per cent. of potash is more than is needed on any crop. I have never recommended a higher percentage than 10 per cent. in a mixture for any crop, and small grains will need less than that. A mixture of 1,600 lbs. of ordinary 13 per cent. acid phosphate and 400 lbs. of muriate of potash would give you very near 10 per cent. of each in the ton. For barley, I believe the following will do well, as I know it does well for wheat after corn, though I have had no experience with barley: Acid phosphate, 1,200 lbs.; cotton-seed meal, 600 lbs., and muriate of potash, 200 lbs., to make a ton. Four hundred lbs. of this will make a good dressing per acre. W. F. MASSEY.

Cow-Peas.

What is the proper time to seed cow-peas to cut for hay, or to improve the land. After the hay is cut, will plowing the roots under benefit the land, and at what stage do the peas have to be in to cut for hay, and what is the best kind to plant?

JAMES C. NORRIS.

Talbot County, Md.

Sow as soon as the land has become warm—say in May; and you may continue to sow until the end of July. The best variety for you would probably be the black pea. They should be cut for hay when the lower pods are filled and beginning to change color. The roots alone plowed down add much to the fertility of the land, as the nitrogen nodules are upon them. When cutting the crop for hay the stubble should be left long, so as to add humus to the soil.—ED.

Cut Worms.

Will you please answer in the *Planter* for January these inquiries? Four years ago I cleaned up a plot of new land for a garden, and planted it in cabbages, turnips and other garden truck, after applying a quantity of good, well-rotted stable and cow lot manure. The next two years the garden was well plowed and planted again in the same kind of vegetables, after receiving a goodly supply of the same kind of manure. Up to January, 1899, my garden was alive with cut worms. Last spring I used no other kind of manure on my garden but a fertilizer known as Blood and Bone, mixed half and half with German Kainit Salt, and I had no cut worms or cabbage worms or any kind of insect to bother my cabbage or other vegetables during spring and summer; but in my field where I put all my stable and cow lot manure, I was plagued very much with the bud and cut worm and heart worm also in the corn. This fall I have plowed my garden up deep and run my cultivator over it twice both ways, and after putting a lot of well rotted manure from the stable and cow lot on it, sowed it broadcast in three different kinds of turnips, and then set out two kinds of cabbages on a ten-foot border all around the garden. Up to this writing my cabbages are being cut down by the cut worms, and I notice some kind of insect on the leaves. I also find any number of the very largest kind of cut worms among the dirt around the turnips. Now what I want to know is where do the worms come from? Do they breed, and were they in the ground already, or did they come there in the manure when I hauled it in the garden? and if so will you advise me what I can apply to the manure before hauling it out to field or garden so as to destroy them.

Berkeley Co., S. C. W. H. SUTCLIFFE.

The cut worms are the larva of a beetle which lays its eggs in the long grass in old fields or in any loose vegetable trash or manure. The eggs hatch and the larva feed on the young plants or young tender grass until they pupate and afterwards hatch out into beetles. They are always more troublesome on new ground and on rich light lands. There are several ways of destroying them. One is by the application of kainit to the land. This potash salt is destructive to all it reaches. Another way is to poison them before setting out plants on the land or before the corn or other seed germinates. This may be done by mixing bran with molasses and water so that it will make up into balls the size of a small apple. Before making the balls add to the bran a good dose of Paris green, say one pound to the half bushel. Then make up the balls and drop them at intervals of a few yards over the field or plot, and the worms will eat them and be poisoned. Or bunches of green clover may be

dipped into a solution of Paris green and water and be dropped over the field. The clover will be eaten and poison the worms. Kainit may be mixed with the farm yard manure with advantage, as it will improve the manure and kill any young worms hatched there. The worms eating the cabbage plants after they have got too large and strong grown for the cut worms to hurt them, are the larva of two or three kinds of moths which lay their eggs on the leaves, where they hatch and then commence their ravenous eating. These may be killed by dusting the plants with Paris Green when they are attacked when very young, but it is not safe to use the poison on plants when they have begun to head. Lime dusted on the leaves will also frequently help to get rid of the worms. They may also be destroyed by watering the plants with hot water.—ED.

Canada Peas and Oats

May I trespass on your valuable time to tell me why I cannot succeed with Canada peas and oats? I have tried several seasons now, but have had no success with the peas, though I get a very good lot of oat hay. I have followed the instructions of the *Planter*, except have not gotten them in before the first of March, and I see a late number says plant not later than February. Would that obviate my difficulty, which is, the peas get ripe before the oats are high enough to cut and make very little growth, and when the oats are in bloom they have about all dried up? I have tried them on high land and failed. This year I put them on the finest tobacco low ground I have, being determined to succeed, but as usual they started off well and about disappeared when the oats were ready to cut, making very little growth and drying up. This season I have a good stiff piece of bottom land that brings 16 bbls. of corn to the acre, which was in corn this year, that I would like to try in this crop, as I dislike to give up, but I see no change I can make to better my chances of success except to sow earlier, unless you can help me out. In plowing the peas under and then harrowing the oats in, many of the peas are brought to the top. Would it not be better to plow all under at one time? JOHN CAMM.

Campbell Co., Va.

It is essential to success in growing Canada peas in the South that they be planted very early. They must make their growth before the hot weather sets in, or mildew and heat will destroy them. It is also essential that they be planted deep, so that the roots can get established in the cool moist subsoil. These conditions complied with, we have never known them to fail to make a crop on land in a good or even fair state of fertility. It will not do to plow the peas and oats down together, as the peas will not be deep enough in the ground at the right depth for the oats. Sow the peas broadcast, then plow them down so that they are at least six inches covered, then sow the oats and harrow in lightly so as not to disturb the peas. You should not fail on such land as you propose to sow.—ED.

Poultry Droppings.

I am getting large quantities of chicken droppings. Please advise me how I shall handle to best advantage, and what crops best to use it on. I find it is too strong when applied raw to many vegetables. Can stable-manure be used to advantage on rye, oats, wheat, etc.?

Halifax County, Va. GREEN RUBIN.

Fresh hen manure contains the following percentages of fertilizing elements:

Nitrogen	1.10
Phosphoric acid	0.85
Potash	0.56

The following table gives the comparison with other ordinary forms of farm manures:

	Nitrogen.	Phos. Acid.	Potash.
Cattle	0.29	0.17	0.10
Horse	0.44	0.17	0.35
Sheep	0.55	0.31	0.15
Hog	0.60	0.41	0.13
Barny'd man. (av'e),	0.49	0.32	0.43

From this it will be seen that hen manure is a specially rich form of natural fertilizer, especially in its nitrogen content. But this nitrogen, which is the most costly fertilizer, is quickly lost unless care be taken to preserve it. It is important, therefore, that fresh hen droppings should be daily dusted with plaster to fix the nitrogen. When so treated, it will be found a valuable auxiliary to mix with other manure for every crop, or it may be used alone with great effect on truck crops requiring to be grown quickly. It should not be applied in too great quantity, and should be mixed with the soil in the row or hill before planting the seed or plants. Stable manure can be used with great advantage as a top dressing to the wheat, oat and rye crops. It will, when so used, largely prevent winter-killing, and greatly help the growth of the crop.—ED.

Fall Plowing.

You have urged time and again the importance of sowing some crop in the fall in order to give the land a covering, and yet at the same time you urge fall plowing, which would accomplish the opposite result. How do you reconcile the two?

H. MORTON BOWEN.

Prince George County, Md.

We see no inconsistency in our advice as to the importance of sowing a cover crop for the land in the fall, and also to practice fall and winter plowing. The sowing of fall cover crops cannot well be extended, with any prospect of success, later than Octo-

ber or the first half of November. After this time, the plowing of all land not seeded should receive constant attention all through the winter months. The weather during the late fall and winter months is, in the South, usually ideal weather for deep plowing and subsoiling, and the advantages to be gained are so great that we should fail in our duty did we not enforce attention to it.—ED.

Lime on Light Land.

Will you kindly tell me if an application of commercial lime applied to sandy, loose land will help the land to hold barnyard manure any better?

C. E. SHELTON.

Forsyth County, N. C.

The application of lime to light land has the effect of binding together and consolidating it, thus making it more retentive of moisture, and capable of giving better returns for the manure applied. Lime applied to heavy clay land tends to loosen it and make it more friable and permeable by the roots.—ED.

Making the Cotton Crop—Saving Oats.

The continued exodus of our negro labor to the turpentine farms of Georgia and Florida, and the unreliable and shiftless character of those who remain, renders farming more unsatisfactory each year.

Is there no basis on which we can work in cotton farming except that of one mule and one plowman for each 30 acres, to say nothing of the extra expense of hoeing? Is there no cultivator which can be used in the cotton crop from start to finish, to be operated, say, by one man and one or two mules? or can you suggest any other plan of cheapening the making of the crop?

What is the proper way to shock oats, so that they may be left in the field and be threshed there? Are caps (cloth covers) necessary?

Kindly answer in January issue of *Southern Planter*.

Sumter, S. C. A. B. C.

There is certainly a different basis, and until a different one is adopted, there will be no real farming done with cotton. So long as the cotton farmers scratch a little ground themselves, and then set every negro in the neighborhood to cropping in competition with them, just so long will there be in every good season an overproduction of cotton and low prices. The great surplus in the cotton crop is made by the croppers, who make one, two, three, or more bales. If every cotton farmer in the South would determine to cultivate just what land he could farm well, and then, if there is more than he can improve, let it grow up in pines, rather than put it out to croppers, he would compel the croppers to work for wages. There would be, perhaps, as much cotton grown, but it would be grown on fewer acres, and at a greater margin of profit. The whole method of growing cotton needs to be improved and implements used that will do the work more economically. First, there is the weeder for the start. Run it both ways and save all the hand chopping, and have the land in better condition. When past the use of the weeder, start the small-tooth cultivators and keep them going shallow and level. The two-horse riding cultivator would be an excellent implement, at least in the early growth of the plant, but the small-tooth one-horse cultivator will be the best tool in the end. Drop all refereace to so many acres to a mule, and determine to make as much cotton per acre as the land is capable of being brought up to. Bales per acre, rather than acres per mule, should be the aim. I know a man in this State who is farming on a large scale, and made this year of bad crops a bale and a quarter per acre; but he is farming, and not merely planting cotton, for he has fed this year on the products of that farm 600 beef cattle bought all around the country by a man whom he keeps continually on the road. With silos and cowpea hay, and the meal from his cotton seed, he is making manure enough to rapidly build up his land, till it is as rich as most people's gardens. Besides his cotton, I saw on his place over 1,500 barrels of late second-crop potatoes buried for the spring seed trade, and he grew them at the rate of 65 barrels per acre. Then, to cheapen the expense of cotton, we should increase the productive capacity of the soil, and do it by profitable farming in other lines and the use of the best labor-saving tools. The Western farmers would never grow the corn crops they do if they adhered to the implements of a century ago. They are always on the look-out for new labor-saving devices, while the cotton farmer has stuck to his old bull-tongue and sweeps, and figures on the number of acres one negro and one mule can scratch over year after year in cotton. Good farming and a total abandonment of the Southern tenant cropping system is the only way out of it. If the negroes were sure of employment the year round on the farm, they would not have to seek the turpentine forests of Georgia, but could be kept at home. Those who want to work, must have work at home, or must seek it elsewhere. The system of farming, and not the negro, is to blame.

It would be an easy matter to show you how to shock oats in the field, but hard to say just how it must be done. It will depend largely on the oats. Poor and short oats are hard to shock securely. The method used in shocking grain in sections where it is common to thresh from the field, is to make small stacks rather than shocks as commonly seen. That is to set up a sufficient number of bundles so that another good layer can be placed on top, with the heads all drawn to the centre, and there capped by a sheaf well spread out. Do not know that you can under-

stand this, but I could easily make one in the field, and it would take 30 to 40 bundles, or more.

W. F. MASSEY.

Hessian Fly.

Will you kindly give me a description of the "Hessian fly" in next issue of the *Planter?*

My winter oats are covered with small green, fuzzy insects. Can you tell me if they will have any effect upon them, and if it would injure cattle to graze them? F. D. SWANN.

Caswell County, N. C.

The insect you name is hardly the Hessian fly, for that is now in the pupa or flaxseed state, and would be found encased in the base of the stalks, a little brown, smooth and apparently lifeless thing, like a flaxseed. Send specimens of the insect in a box to the Department of Agriculture at Raleigh, so that the entomologist can examine them and advise you. The Hessian fly is a slim-bodied, two-winged fly, with rather uncommonly long legs for its size, and long antennæ or feelers. It has two broods—one in fall and one in spring. W. F. MASSEY.

BUILD GOOD BARNS AND STABLES.

Editor Southern Planter:

It was a common saying, in the native home of the writer, that the barns and stables on a farm were a pretty certain index of the kind of farmer who owned them. Frequently large well-built barns and stables were to be seen by a very insignificant looking dwelling house. The house was small, not because a more spacious one would not be appreciated, but because the funds of the farmer, just beginning, would not hold out for both, and he knew if he would succeed he must have proper buildings for his crops and stock. The fine house would come later.

There is not the need of as expensive farm buildings in the South as in Ontario, or other parts of the North, but the almost total absence of commodious barns and stables counts against its agricultural advancement more than one might think. This part of the South must be devoted more to raising and feeding stock, if it is ever to reach the high plane, the climate, land and markets destined for it. But this keeping the farm animals in rail pens, sheds, and leaky, drafty buildings, with nearly all the feed outside, will never yield enough profit to inspire the people to make live stock their mainstay.

It does not seem like very good management to keep the cows, calves, pigs, etc., exposed, and then have to give an extra quantity of food to keep up the animal heat. That will be maintained, though it be at the expense of muscle, fat or milk.

The first cost of a well-built stable, one that can be kept comfortable, no matter how bad the weather is, will be greater, but the advantage of having it is soon apparent.

From our experience here we have found it quite as essential to have all provender under cover as to give the stock good quarters. It costs less to store it away than it does to put it in stacks outside. The winds are not driving through it and carrying off the aroma, and there is not the great waste that usually takes place when feed is put up outside. A neighbor, who, in the last two years has grown more hay than he could get into his barns, put about thirty tons each year in stacks, in very good shape, too; but he says enough was damaged, so that it was unfit for food, to have put up a barn that would hold one whole stack or thirty tons.

During our first years in Virginia we had a taste of stacking that thoroughly convinced us there was no money in it.

An arrangement that we have found to give entire satisfaction, is to have stable and barn in one. The stock occupy the ground floor. The dry feed and bedding are stored in a high barn above.

Height or depth is needed, else only a small quantity of feed could be stored within. With modern unloading apparatus, height is no detriment to filling a mow, and it makes a wonderful difference in the amount that can be got in a given space.

Pea hay, clover, cut corn stover, etc., are in different mows. Through openings in the floor by each mow, either kind of feed can be pushed through to an isle between the rows of stalls. For finely cut up feed a car is used in the stable, which can be run the whole length.

The advantage of having stock and feed under one roof, dry and warm, is particularly felt when rain, sleet or chilling winds make everything unpleasant out doors. The deep snow and cold of last winter had no harmful effect on the stock, not even the milch cows, and the feeder hardly knew of it.

I sometimes think that the want of buildings is at the bottom of the scarcity of live stock through this part of the country. Almost as necessary as feed are good handy barns and stables. With them the farmer in the South will find that stock keeping can be made to pay well in connection with the other lines of farming.

But build large enough or plan so that when you want to put on additions it can be done without having the completed whole inconvenient to work in.

ALBERT R. BELLWOOD.

Chesterfield County, Va.

Mention the *Planter* to your friends.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

Whilst it is too early to do much in the way of gardening or trucking, except in the far South, yet it is not too early to be getting the land for the first crops into condition for planting at the very earliest opportunity if only the weather is suitable and the land dry enough. Do not, however, be tempted by the weather if the land is not dry enough to work kindly and freely.

The first crop to prepare for is the English pea crop. This may be planted in the Tidewater and seacoast sections of Virginia and North Carolina during the last week of this month, and in the month of February, if the land be dry. English peas will stand a considerable degree of cold without injury; indeed, they make their best growth and yield much better if planted very early. Peas should be covered deeply, so that their roots may take hold of the cool subsoil, and thus be able to withstand a drouth and the hot weather. Well-rotted farmyard manure, or a fertilizer made of acid phosphate and kainit in equal parts, is a proper fertilizer to use for the pea crop. It will gather its own nitrogen from the atmosphere, though, if an early crop is desired, a top-dressing of nitrate of soda, after the crop has begun to grow, will be profitable.

REPORT ON JAPANESE PLUMS.

As a number of varieties of the Japanese plums have been planted in the South, and as they appear adapted to our climate, it will be of interest to growers to know what is thought of them by so great an authority as Professor Bailey.

In January, 1894, this station issued a bulletin (No. 62) on the Japanese plums. Subsequent issues were made in Janury, 1896, and in October, 1897 (Bulletinsa 106, 139). For five years, and more, the Japanese plums have been the subject of careful study at Cornell, and an effort has been made to secure all the varieties. During the past season the crop of these plums has been large and excellent. We are still convinced that the Japanese plums are a very important addition to our orchard fruits. They will not drive other plums from the field, but they have attributes which make them an excellent supplement to the European and native sorts. The particular merits of the Japanese plums are their great productiveness, adaptation to a wide range of territory, beauty, earliness of many of the varieties, comparative freedom from diseases and insects, and long-keeping qualities of fruit. Most of the varieties tend to overbear, and good fruits can be secured only by very heavy thinning. This is especially true of the Burbank, the Abundance and the Red June. There is great range in quality of the Japanese plums. The poorest of them are inferior to any of the European varieties. The best of them are nearly equal to the best of the European kinds, and all of the leading sorts are better in quality than the Lombard, if they are properly thinned and ripened.

A great merit of the Japanese plum is the fact that it is adapted to an exceedingly wide range of territory, in this respect excelling both the Domestica and native types. There are varieties which thrive from Canada to the Southern States, and apparently from ocean to ocean. There has been some complant in the Middle States and the South of loss of blossoms from late spring frosts, but we have never experienced this difficulty. The buds start early; but in New York State, at least, the winter climate holds so late that there is practically no danger from the early swelling of the buds.

The Japanese plums are less seriously attacked by insects and fungi than the common European or Domestica type is. They are not entirely free from the shot-hole fungus, black-knot, curculio and other difficulties; but in our experience these troubles have been so infrequent or of such minor importance as not to attract serious attention. The fruit-rot is often serious on Japanese plums; but, in our experience, it is equally or even more serious on the Lombard. If the Japanese plums are properly thinned, there seems to be no unusual susceptibility to the fruit-rot fungus.

The larger part of the Japanese plum stock which is sold by nurserymen is on peach roots; and on these roots they seem to thrive. However, we find that they do remarkably well when top-worked on Lombard stocks. Theoretically, we are to expect the best results when they are worked on their own roots; and these plums are now so extensively planted that the time cannot be far distant when seed can be obtained cheaply enough to warrant the raising of Japanese plum stocks. It remains to be demonstrated, however, whether the Japanese plum roots are actually better than the peach or the Domestica plum roots.

In former reports, we have spoken of the great variation of the Japanese plums in respect to the period of ripening. We find that the same trees often do not ripen their fruit in the same sequence in different years. In some years there may be a difference of two weeks in ripening between the Abundance and Burbank, whereas in other years the very same trees may ripen their fruit almost simultaneously. The period and sequence of all fruits are greatly modified by the particular season, but the Japanese plums seem to be particularly unstable in these respects.

Ever since we began the study of these Japanese plums, we have been puzzled to account for the great differences in opinion respecting the merits of individual varieties and the wide discrepancies in descriptions of them. Some of these discrepances are traceable to a confused nomenclature; but we now believe that many of them are due to the fact that the same tree may bear unlike fruit in different years. Some of the trees which we have had under the closest observation during two or three crops, seem to have behaved in this way.

Live Stock and Dairy.

FILSTON FARM, GLENCOE, MD.

The Berkshire boar, Storm King, was imported by the Filston Farm to head their herd of select Berkshires. At the time the picture was taken the boar was in light flesh, and is kept so purposely, but when in show condition he carries a wealth of fat that fits him to win in any ring. He is a son of Swansea, and was retained by Mr. Burbridge, of England, as a show boar. Swansea was bred by N. Benjafield, and after a most successful line of victories was placed at the head of the Queen's herd of Berkshires at Shaw Farm, England.

Filston Farm is located in the very heart of the great milk-producing belt that surrounds Baltimore. The value of this property is considered to be over $150,000. The stables and outbuildings are large, and contain all the latest up-to-date accessories in use in modern dairying. Several barns are here grouped, affording the opportunity of distributing the dairy herd, so that in case of fire, epidemic or any emergency, the danger of losses would be lessened. Each barn holds from fifty to seventy five cows, with ample loft storage for provender. Records are kept of each cow's annual production of milk. Two hundred and fifty pure-bred registered Jersey cows are kept. Mr. Gardiner knows the names and pedigree of each cow. The milk is cooled and aerated with one process; all the utensils are steam cleaned; the cemented stables are kept scrupulously clean, with a suspended trolley car that runs back of the stalls that carries out all droppings; the milkmen are dressed in white suits to do the milking. An extensive well-ricked lot of corn fodder with a new ridge roof over it indicates that Mr. Gardiner fully appreciates the value of good dry corn fodder for milch cows. The modern hoghouse on the farm has seven double apartments, with cemented floors. The center is a few inches lower, and is arranged so that a wagon may be driven through to remove the filth, etc.

Filston Farm dairy was founded in 1882 by Mr. Edward Austin. Retiring from active business life in New York city, he turned his attention to pure-bred cattle. His first fancy was Devons, then Ayrshires, and finally settled on Jerseys, which soon resulted in laying the foundation for one of the largest herds of Jerseys in the United States, though it is practically what might be termed a home-made herd. Mr. Gardiner is an enthusiast, and through his efforts is ably maintaining the aim Mr. Austin had in view. Mr. Gardiner considers that the sire is half of the herd, and concludes it is wisdom to loosen the purse-strings and always secure the best sires.



STORM KING.

The Herefords have shewn a wonderful degree of adaptivity to our local conditions, and do well even on our wild grasses, as shewn in the report recently published in this journal of the weight gained on grass alone by Hereford cattle owned by Dr. Stone at Stonehurst, in Fluvanna county. This is also a characteristic of my stock on the grasses of Albemarle county.

Mention the *Planter* when writing to advertisers.

A TWENTIETH CENTURY FARM.

THE BILTMORE FARMS, BILTMORE, N. C.

During the decade now drawing to a close, one Southern breeding establishment has been gaining in prominence and popularity so rapidly that this year leaves it practically headquarters for the lines of breeding carried on there. We refer to the Biltmore Farms, a part of the North Carolina estate of Mr. George W. Vanderbilt. Whilst all are under the management of one superintendent, the work on each farm is carried on by a specialist in his line, and by this method an amount of personal attention and high standard has been secured that has hitherto been impossible on any establishment where more than one line of breeding has been followed. We will pass over the Jerseys, Berkshires and Poultry Departments, to be taken up later, and refer briefly to some of the others.

The Market Garden comprises a stretch of rich alluvial bottom and second bottom along the Swannanoa River, which have been thoroughly tilled and drained (as have all the bottom lands on these farms), and can be irrigated from a gravity system, the reservoir of which is fed by two streams back in the hills. The buildings are permanently constructed of brick and iron, with tile roofs, grouped around a paved court-yard, and comprise a two story storage house, washing-room, men's lunch-room, ample sheds for tools, wagons, etc., lavatories, stables, work-shop, small tool room and office. Behind, stretching to the south, the four forcing houses, heated from a central plant, where lettuce, tomatoes and cucumbers are the main products. These will be still further added to, as the home market of Asheville is growing. The principal out door crops are secondarily cabbage and potatoes for shipping south; asparagus and rhubarb for home market, and late Irish and sweet potatoes; and lastly, but almost mainly, celery, which under irrigation has been a certain and profitable crop.

The Packing House Department, which also has a retail store in the village, is also very complete. Here all the cull Berkshires find their end, and it is made an easy one, with overhead tracks and scales, steam scalding vat, lard rendering tank, refrigerator, power sausage chopper, fire-proof smoke houses, storage and pickling rooms, and further up the hill the fattening pens for swine and a cattle barn with two roomy silos.

The sheep barns, where the Southdown flock, headed by Imp. Victor 10503, are kept, are a model of their kind, with free ventilation to the roof and facing the south, can be opened up that way almost the whole length.

During 1899 Jerseys and Berkshires have been sold to California, Iowa, Nebraska, Indiana, Illinois, Missouri, Maine, New York, New Jersey, Pennsylvania, Maryland, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Texas, Mississippi, Alabama—twenty-two States in all, comprising 43 Jerseys and 140 Berkshires, most of these males to head herds.

The farms also made a formidable record of prize winnings at the five State fairs which they attended this year. Representative herds of Jerseys, Berkshires and also specimens of poultry being shown at Norfolk, Va., Hagerstown, Md., Raleigh, N. C., Columbia, S. C., Atlanta, Ga., and Birmingham, Ala. The Jerseys were sweepstakes herd at each of these places, and won a total of 32 sweepstakes, 46 firsts, 28 seconds and 6 thirds. The Berkshires also won a total of 18 sweepstakes, 119 firsts, 90 seconds and 16 thirds, which represents a total of all the first prizes for which they entered, with two exceptions, where the farms were competing against stock of their own breeding, and therefore withdrew their entry for first prize. This total of 243 prizes for Berkshires is a record never before made in any one year by a single breeding establishment, and in addition to this they have placed boars of their breeding during the last year at the head of nearly every prominent herd on the continent. The poultry won a total of a little over 500 prizes in all, encountering at Atlanta, finally, the strongest competition, where nearly 3,000 birds were entered, principally from Northern and Western States. The competition was especially strong for three handsome cups, one offered for the best pen of Barred Plymouth Rocks, one for the highest scoring collection of birds, and one for the highest scoring bird of any breed, and also $50 in gold offered by the mayor of Atlanta as a special premium for the best pen of Barred Plymouth Rocks.



GOLDEN ORA, IMP., 127228.
Sweepstakes Cow wherever shown, one of the many daughters of Golden Lad, in Biltmore herd.

The Biltmore herd of Jerseys, which averaged in number during the year over 225, was founded first of all by the purchase of the best individuals, backed up by the best breeding that could be found in this coun try, principally of the St. Lambert, Tormentor and Lowndes blood, and to these were added two importations of the Golden Lad family. These farms were the first to attract attention to the get of old Golden Lad, and now have in service three Golden Lad bulls, one a son, one a double grandson, and the third one by a great grandson, and out of the best daughter of old Golden Lad. They also have nearly fifty daughters and granddaughters of the old bull, so that they can safely claim to be the American home of this family. Among their bulls in use is *Trevarth*, who headed the sweepstakes dairy herd at the above-mentioned fairs, and who is by a Lowndes bull and out of a Tormentor cow that is one of the best individuals in the herd. To breed with the St. Lamberts, a pure St. Lambert bull, Laird of St. Lambert, was used for two years, and then his place taken by General Marigold, whose young calves, at the dispersal of that veteran breeder, Mr. T. S. Cooper, averaged nearly $140 each for twenty-one head, speaking well for their individual merit. He is a rare combination of two great milking families—the Massey Polo blood which has made the Big Four that Mr. Sweet has drawn so much attention to lately, on the sire's side, and on his dam's side brings in the World's Fair winner, Mary Idagold, and he is, moreover, inbred Eurotas.

Great care has been taken in conducting this herd upon the most rational lines which will insure well developed individuals of good constitutions, with large food and milk capacity. A resident veterinarian, of national reputation, spends his whole time watching the stock so as to guarantee absolutely their health. The cows are not forced in any way, are out during the summer months both day and night on extensive pastures, and are also, during the winter, kept in the fresh air with the exception of such days as it is judged they would be more comfortable in the barn.

This fine herd has, in the past, been kept in temporary wooden buildings, but plans for the new cattle sheds and dairy have just been completed by the superintendent, and ground will be broken for these in the course of a few weeks. They have been planned specially to meet the hygienic demands, such as liberal ventilation, plenty of sunlight, with non absorbent

walls, floors, feed troughs, etc., so that the whole interior can be washed down with the hose. The dairy will contain every known practical convenience for producing first-class milk, butter and cheese, with refrigerating plant, cold storage, and ample appliances for sterilizing milk cans and delivery bottles. Since the commencement of this business every milking has been weighed, and duplicate Babcock tests also run each month and complete records kept from these, so that the returns from the cows for the year can be seen at a glance, realizing that the profits must come rather from the sales of milk than from the sale of breeding stock.



BURTON BERNICE. B. B. 6710. A. B. A. 57638. PHILIP ERRINGTON, 49534. MERE BEAUTY. B. B. 6609. A. B. A. 51658. LUCILLE'S PRINCESS II, 49521.

The Biltmore herd of Berkshires was founded some eight years ago by the purchase of a small herd from a noted Northern breeder. These few did not breed sufficiently uniform to meet the high standard set here, and it was decided to try Longfellow blood from the fountain head, Mr. N. H. Gentry, of Missouri, from whom daughters of such noted sires as Model Duke, King Longfellow, Baron Lee II, Baron Duke IV, etc., were purchased, safe in pig to equally good boars. From this purchase, a very rich foundation, averaging 47 per cent. Longfellow blood, was secured. It was deemed wise, however, not to continue inbreeding any longer, and the importation was made from England of Commander, a winner in his class at the English Royal, and the combination of which with the Longfellow sows made a great nick. Last fall it was decided to meet an expected demand for fresh blood to use in the same way as an outcross in other herds which had been using Longfellow blood, and as stated by the English papers, the largest and richest importation of English prize winners that ever left those shores was brought over—every individual being either sired by or out of a winner, and many of the sows already the producers of prominent winners. As the demand began to spring up for boars that were directly by imported animals on both sides, the best boar in England was then imported. This was HIGHCLERE TOPPER, who distinguished himself with a show-yard record in the spring and summer of 1899 that has never been equalled by any Berkshire in England, finally taking sweepstakes over all breeds at the English Royal at Windsor, the first time it has ever gone to a boar. He was auctioned off at $650, and

would doubtless have gone higher had not the other competing American breeder, a prominent Northern breeder of Berkshires, found out who was bidding against him.

The permanent buildings in this department are now being rapidly completed, and comprise a very attractive group with accommodations for sows about to farrow and young litters, with three of the compartments containing arrangements for steam heating, should unexpected zero weather demand this. In addition there are stalls for the work stock, a large and ample feed room, carpenter shop for making shipping crates, a small office where the records are kept, storage room and basement cellar for the storage of sugar beets, which forms a necessary part of the ration for brood sows. The main herd is distributed over a large area, being kept in small detached lots with ample pasture and woodland lots connected. By this means ample exercise can be given and the risk of heavy losses, should any contagious disease by any means be introduced, is thereby minimized. The system, however, prevalent on these farms of full quarantine on a distant farm of all stock that comes back from the fairs or is introduced by purchase, has so far prevented any trouble of this kind.

derneath, and each yard is so arranged that a part is open grass and the balance in woodland. Over fifteen acres is covered in this way, but a large number of the birds are kept on the outstanding farms, one breed only being kept at each place, and they have the full run of the farm land. The sales this year have been so numerous that another month will see the surplus stock sold out, and arrangements have already been made for raising a greatly increased number. A specialty has been made of only a few breeds which have been proved to be suitable to the requirements of the general trade, and this will now be reduced still further until only about three breeds will be kept in future. The birds are raised in the early spring literally by the thousand, and all culls are sold as soon as possible for the table to the near-by market at Asheville. Owing to the large number of shade trees left it has been impossible to secure a satisfactory photograph of these buildings, especially as they are scattered over all the area possible.

It has been quite a habit with many newspapers, especially small local ones in the South, to state that the proprietor of these farms is giving away stock to all applying. This would hardly be a practical thing to do, especially as the enterprise is run purely upon



BILTMORE POULTRY YARDS.

The Biltmore Poultry Yards have proved a never-failing source of attraction to the numerous visitors that are admitted twice a week to the estate.

The same general principle of detached buildings has been carried out here until the appearance, as first seen from the main road, is that of a small manufacturing village. The central buildings comprise an office, and immediately to the left of this and stretching out to the north, the incubator room, which is a half basement and protected overhead by a storage room so that the temperature is a very uniform one. The feeding room contains arrangements for the steam cooking of food when necessary, ample feed bins, and also the heaters for the brooder house, which is a double one, and has a capacity of over 3,000 broilers. The detached houses all face the south, are on the warm slope of the hill, and have a scratching shed un-

a commercial basis. We are assured, however, that when consideration is taken of the rigid culling of all the stock raised, nothing being shipped out but what is up to the high standard, that the prices asked are extremely reasonable, and are exactly gauged to meet the value, which is a correct one, as none but experts in their lines are employed upon these farms.

There has never been an effort made to enter into competition with those breeders advertising to sell stock at less cost than it can be raised for. The general plan upon which the sales are made is to give an accurate description, which is guaranteed, and there is no better testimony to the value of the stock which is now being sent out than the fact of the almost unprecedented increase of the sales each year over that of the preceding year.

SALISBURY, CHIEF STOCK SIRE IN THE CASTALIA HERD, ALBEMARLE COUNTY, VA.

"Brains and Blood Make Breed and Beef."

The Hereford bull, imported Salisbury, was purchased in England in 1897 and sold in America at public auction March 3, 1898, to the present owner at the then largest price ever obtained for a Hereford at auction.

At the Herefordshire and Worcestershire Agricultural Show of 1897, Salisbury, "a straight, lengthy, well shaped bull of excellent quality, was second in yearlings to Lonsdale, the latter being bred by Mr. A. E. Hughes and sold for export to South America. Salisbury was bred by John Price and sired by Boni face (9600), *Boniface being the sire of the first prize winner at both the Smithfield and Birmingham fat stock shows in the year 1897.* The dam of this bull is bred very much like the dam of the winning steer. This bull is full three quarters brother of the steer. The sire of Boniface is The Grove 3d, dam Emerald 3d of Turner breeding, sired by Pirate, first R. A. S. E., 1881, first B. and W. E. S., first Glam. A. S., first and special H. A. S., first S. and W. M. S., 1881.

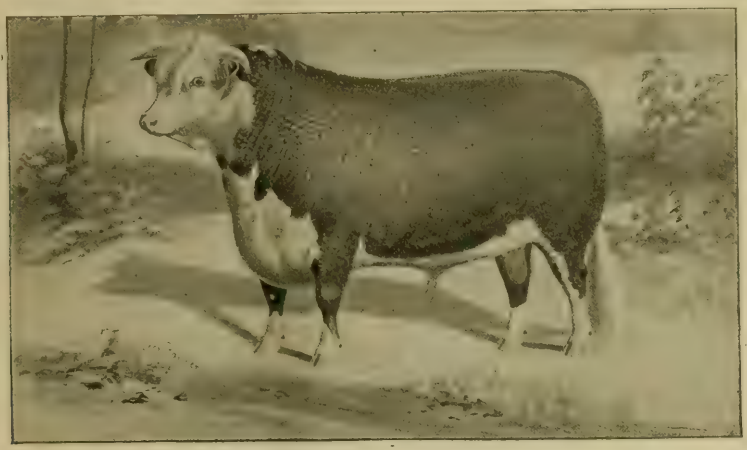
Snowball, the dam of Salisbury, was sold to the Queen, and was sired by the great breeding bull Pioneer. Snowball was second H. A. S., 1893.

Pioneer was sire of such good animals as Post Card, first H. A. S., 1891; Geraldine, Satinette, Amythest, Gwynneth, Gwyn, and many others. The sire of Pioneer, as well as the sire of Saucebox, is Monarch, the great son of Lord Wilton, the show bull and producer of show animals, both males and females. The sire of the third dam is Hardwick, a Horace bred bull, as is the fourth dam.

Salisbury represents a combination of Rogers, Turner, and Price blood, The Grove 3d having been bred by B. Rogers, Emerald 3d by Turner, and Snowball being straight Price breeding. It is over half a century since Mr. Benjamin Rogers commenced at Doluggan in Radnorshire to lay the foundation of the herd that since its removal to The Grove has exercised such a remarkable influence on the Hereford breed.

The remarkably fine and even lot of calves sired by this bull endorse his promise of value as a great sire of the Hereford breed.

Already these calves show straight backs, well-sprung ribs, good twists, quarters, chops and briskets, and those unmistakable signs of good breeding—fine bone, rich coats and neat heads. They are in truth pictures of beauty, and prove the old adage, "What's bred in the bone, must come out in the flesh."



The transmitive characteristics of the Herefords are well known—the produce of a grade cow by a pure-bred Hereford bull following the characteristics and markings of the Hereford nine times out of ten, maturing early and showing the aptness to fatten which makes the Hereford so great a paying investment for stockmen. If the farmers of Virginia would try a pure bred Hereford bull of good individual merit and ancestry, they would soon be convinced that it pays better to raise good beef than anything else on the farm, and the market for good stock is always at hand.

Albemarle Co., Va. MURRAY BOOCOCK.

Mr. Aug. Sorgenfried, Widewater, Va., writes: "I would not do without the *Planter*. I like it better than any agricultural paper I take."

The Poultry Yard.

EXPERIMENTS WITH CHICKENS.

Editor Southern Planter:

A few years ago the writer began to breed chickens on a small scale, simply for pastime and recreation after office hours. No definite breed was at first selected, and a small lot of common fowls of various colors were first secured. Desiring, however, to have a distinct breed, a trio of White Crested Black Polish fowls were purchased, and an attempt made to keep them separate from the other fowls. I found, however, that, very much to my regret, the male was not easily confined, and that but few of the eggs from the Polish hens were fertile. It is also to be regretted that the writer was not able to raise a single full blood Polish fowl. It was all the more regrettable from the fact that this variety of fowl is a very novel and pretty one. It may be truthfully stated, however, that the Polish fowl is strictly a fancier's fowl and not one for general profit, especially the profit required on the farm. For the fancier who has nothing to do but spend his time with his chickens, no more satisfactory fowl can be gotten. It is a handsome breed, very docile as a rule, and certainly makes a nice pet. The varieties of the Polish breed are numerous, viz: White Crested Black, Black Crested White, White Crested White, Silver Spangled, Gold Spangled and Buff, all of which are very handsome. The crest on the head is very large, and obscures the view of the fowl in nearly every direction except downward. They are, therefore, an easy prey to hawks, and for this reason alone are certainly not the farmers' fowl. Again, in winter time they must be protected from inclement weather, since the heavy crest, when wet, remains so for a long time, thus subjecting the fowl to colds, roup, etc. The young chickens are very delicate, and must have the best of care, especially while feathering. The breed is a good summer layer, but according to the writer's experience, not a winter layer. Instead of wanting to set at the end of each brood, it seems to be the rule for them to cluck for a few days, and then start in on another setting of eggs.

The cross of this breed on the common fowl produced a most excellent chicken. The crest was not entirely lost, but was reduced about one half in size and was invariably black. The cross was of medium size, rather long legged, wild, and good rovers. The flesh had a gamy flavor, was fine grained, and I should say as a table fowl could not be excelled Wishing to breed thoroughbred fowls, and this variety not being satisfactory, a second cross was not tried.

The Partridge Cochin was next tried. This is a very large fowl, extremely docile, and depends entirely upon having its rations given it daily, and being a poor forager would probably do very poorly indeed if made to forage for a living. It is a fairly good layer, but sets often and is frequently broken up with difficulty, persisting in sitting in the boxes or coops in which it may be shut for the purpose of "breaking it up." The writer has frequently resorted to the practice of standing the broody hen in two or three inches of water for a period of two or three days, and finds this the most successful method of diverting the persistent mind of the Cochin hen. Some of the hens make good mothers, but are rather too clumsy and heavy for setting. If they are to be used for such purposes, however, the nest should be so arranged that the hen will not have to jump down upon the eggs in going to her nest. If the nest is so arranged tha the hen can simply walk into it, many of the Cochins will come off with good broods. The writer's experience has been that some of them make much better mothers than others. Occasionally one will trample nearly all of her chicks to death, while others will not trample upon any. I have in mind one hen to which twenty six chickens were given, and not a one was lost. For parties in town, or those who only have a small range, I consider the Cochin an excellent breed, since they stand confinement well and are content without a large range. They are easily confined, and will not fly over a fence three feet high. The flesh is, however, rather coarse, and for table purposes is not as good as that of many of the smaller breeds. As a cross on the common fowl I have gotten good results. The product of the cross varies in color, but is much inclined to the buff, and many of the characteristic points of the Cochin are retained. We do not know, however, that the laying qualities are improved.

Considering the cross from the standpoint of the "scrub," I consider it a very desirable one.

As a matter of experiment one cross was made between the Partridge and White Cochin. The cross took on all the characters of the cochin, but varied in color; some black, others black with yellow penciling, but buff predominated.

The White Cochin is similar to the other varieties of Cochins in every particular except in color. I consider the variety a little more hardy than the Partridge Cochin—having now a hen in my flock five years old, while the other variety in question has not lived more than two years for me. The White is equally as good a layer, does not want to set as often, and is a better forager and makes equally as good a mother. The pluck of the male is something remarkable for so heavy a breed. The writer has, on several occasions, known young roosters which were raised in the same brood and never separated, to fight until exhausted, and after resting go at it again and continue the battle in this manner an entire day.

During the present year I have tried crossing the White Indian Game on the White Cochin and the results have been most excellent. One dozen White Cochin hens were mated with a White Indian Game rooster in the spring, and as the mating was late no chicks were hatched from the first setting.

In due time, however, the eggs were found to be fertile and hatched excellently well, every egg putting forth a strong healthy chick in almost every setting. It is very interesting to note the character of the chicks resulting from such a cross. The feathering on the legs characteristic of the Cochin

is greatly diminished, in some almost absent; the the leg is increased in length; the feathers on the body lie close; the carriage is upright and the docility of the Cochin is entirely lost. The head is more slender than in the full blood Cochin, yet thicker and shorter than that of the Game.

For a table fowl they are unsurpassed. The meat is fine in texture, of a game flavor and not dry as is the flesh of many fowls; breast full and plump and legs and thighs large. The chicks are extremely hardy, scarcely a chick being lost after hatching. They require but little attention, are good rangers and on the farm would forage for their own living under ordinary circumstances. When in full feather, however, a very high fence would be required to confine them. As to their laying qualities nothing can be said at this writing, as this is the first season that the cross has been tried. The color is, in most cases, a snow white. A number of the cross-bred chicks were, however, sprinkled with black feathers, which probably came from the game blood, as the full blood Games will occasionally develop black feathers. During the coming season I shall mate the product of this cross with full blood White Indian Game roosters, and will watch the result with a great deal of interest. It may be added that the Indian Game, either white or black, is a large fowl, and among fanciers has a good reputation as being good layers. The flesh is excellent. It is a good ranger, protects its young well from hawks, and for the farmer especially I believe it is one of the most profitable breeds.

For a year or two the writer tried artificial incubation, and through the kindness of Mr. Geo. H. Stahl, manufacturer of incubators, Quincy, Ill., secured an incubator of two hundred egg capacity for the experiment. Having, however, to be away from home a large portion of the time while the experiments were being conducted, my success was not what had been hoped for. The hatching of chicks by artificial incubation requires the closest attention, and the incubator should at all times be attended by the same person in order to obtain the best results. It may be stated, however, that the incubator furnished me by Mr. Stahl for this experiment is of the most modern pattern, easily managed, and with proper attention would doubtless give entiresati sfaction. I hope in the near future to carry on these experiments in a more systematic manner, and to be able to report better results.

E. P. Niles, *Veterinarian.*

Virginia Experiment Station, Blacksburg, Va.

POULTRY—RETROSPECT AND PROSPECTIVE.

Editor Southern Planter:

In the sixty years that have elapsed since the *Southern Planter* first started on its mission of good deeds to the farming world, radical changes have been made in almost every branch of farm work, and well-nigh every farm boasts either full-blood or graded cattle, and in many localities only the best strains of fowls are to be seen.

Up to 1848 or 1850, there was but little if any effort made at breeding fowls either for points or utility. What we had was a mongrel crew of almost indefinable mixture, both of blood and coloring. There were a scant baker's dozen who were making some effort to breed flocks of birds uniform in size and color. It was along in the late 40's that the Shanghai mania took possession of "the folks." The market men watched for incoming vessels in order to get a cock that could "eat off the head of a barrel," to send to the farmers in order to increase the size of his chicks. Later came the colored Dorkings, which, crossed on the Cochins, gave us, according to Dr. Bennett, the Barred Plymouth Rocks. The Light Brahma made his bow for public favor at the Boston Poultry Exhibit in 1850, and from that date poultry culture in America must make its reckoning.

What a wonderful change in the years that have elapsed. Many fanciers keep more breeds now than were dreamed of at that time, and a single fine show-bird will bring more money and no questions be asked than would an entire flock at that date. Read "The History of the Hen Fever," and see how even prices were quoted for ridicule, and then consult the prices of our best breeders, and learn how grand the march of improvement has been, both as to prices and quality of the birds. From an insignificant beginning, the poultry industry has grown from infancy in 1850 to a giant in 1899. *It is the largest agricultural industry in America.*

What does its future contain? Its possibilities are, as yet, untouched, for we do not begin to raise either the fowls or the "hen fruit" that is consumed in our own country. When our entire farming population looks with more favor than now does the largest part of it, upon the thoroughbred fowl, and upon artificial methods of hatching and rearing the chick, then we will at least approximately meet the demand. Fowls by many farmers are looked upon as something of a nuisance, and I have heard more than one say that "one old hen and her chicks will destroy more in a day than she and all her brood are worth." A very strong argument for keeping the hen as a laying machine, and hatching the chicks by means of an incubator, and rearing in a brooder! Thus complete control over their movements is obtained and the maximum of profit secured.

No one need be at any great outlay for either machine; in fact, *both* can be made at home, though I would not advise it for many reasons. Those whose business it is to make these machines can do it with far greater perfectness and accuracy than can any amateur at the business, be he ever so skillful with tools, and this alone should be reason sufficient for most people letting it alone.

Give the good wife or daughter an incubator, and a brooder or two, and let her show you how much more *clear* profit she will make on her fowls than you will on your grain or tobacco.

Save her from wet feet and draggled skirts, gotten chasing some "biddy" to her hovel out of the rain, trying, under the most adverse circumstances, to help you to pay the grocer's bill.

You indulge yourself in snug quarters for your Berkshires and fine cattle with every convenience and the best balanced rations for this same stock, to make it pay an interest on the capital and labor expended. Give the "good woman" an equal showing with her fowls, and have a clear conscience, even though you find, at the end of the year, that she has "given you points and discounted you" in business.

Powhatan Co., Va. J. H. Sledd.

The Horse.

HORSE-BREEDING.

Editor Southern Planter:

So much advice is given to breeders of live stock of all varieties at this period of comparative enhancement of its value that quite often the effect of such advice is rather confusing than beneficial.

But with the commencement of the new year and the inauguration of new plans and systems for material progress, it may not be untimely to make a few suggestions to horse breeders for the coming season.

The first principle of all should be the judicious selection of the dam, and to this end, the idea that it is best, if not necessary, to make use of *any* mare *because we happen to have her*, should be promptly effaced.

Some sacrifice to dispose of an unworthy brood mare and to secure a better one will be amply repaid by the result. No safer guide in this selection (outside of the one variety of very heavy draught horses) can be adopted than the preference of well blended strains of the stoutest thoroughbred families. Bone, conformation and style should be points of careful consideration, but for any object in horse-breeding—with the one exception noted—a finely bred mare will always secure the most satisfactory results, when mated for any of the usual avocations of horse flesh. The reason for making the one exception of heavy draught horses is that absolute weight is, in that variety, the standard of excellence, and this weight can be more certainly obtained by the mating of similar animals belonging to the same class. But for the best results in producing horses for the army, the road, the hunting field, or the plow, the dam cannot have too much thoroughbred blood, provided she possesses the requisite qualities desired.

It will of course be readily understood that these suggestions do not relate to *track* horses, as for instance the trotter, because in this case *speed* is the first essential, and the *speed* of an artificial gait may probably be more surely inherited if possessed by ancestors on both sides.

Let the mare have first a good deep hind quarter; next strong, rather short legs, with stout bone and well developed muscle, and good feet; then, with a good length of body and well sprung ribs, we have the main essentials of a good brood mare. Other points for perfection, such as well shaped shoulders, well carried head and neck, good eyes, and good color, are quite important; and, added to these, should be a perfectly sound constitution and docile disposition.

But even with all these qualities, she may still fail in the most important essential of being a *good breeder*. Therefore, it is a great addition to a mare's value to have the proof of her excellence as a dam in the class of her offspring.

Such an array of qualifications may discourage much hope of their achievement, and, indeed, when such a specimen as could combine them *all* is *obtained*, she would indeed be a treasure; but we should have a definite standard for our guidance, and then approximate it as closely as possible. Certainly such a method would be far preferable to the usual habit of the breeder who, seeing some stallion which strikes his fancy, no matter what the horse's breed or quality may be, at once determines to mate whatever mares he may happen to possess to that horse, and then justifies his rashness by the confident assertion that the said mares are the finest animals in the country, and, bred to such a horse, *must* produce "*winged wonders.*"

The foregoing space of this article has been devoted to the selection of the brood mare, not only because of its intrinsic importance, but also because that is the subject which most exclusively concerns each individual breeder. Of course, he must also select a suitable stallion to patronize, for very few breeders own or keep stallions, and all of them own or keep the mares. Our suggestion is that, once equipped with such a brood mare as we have described, we can proceed with confidence to produce the best colts for any of the purposes mentioned, and also the best mules.

For most purposes, the thoroughbred stallion of the proper quality and characteristics is the preferable sire, but as some farmers and breeders object to "too much blood," the general assurance can be given them that there is very little danger of getting brood mares with too much blood, as the supply is very limited, and the largest infusion of blood *obtainable* very advantageous.

The mare will produce a much better foal if worked with care than if allowed to be idle, and this fact materially reduces the cost of its production. A sufficient amount of good food, without the excess which will only grow the gawky monstrosities of such a system, will develop the best horses, and in any enumeration of dangers to be avoided the first caution should be against barbed wire fences.

The average breeder or farmer will do better to confine his attention to the production of the raw material than to that of the manufactured article, so to speak, if he is raising young horses for sale. Most buyers prefer a young horse, simply well developed physically and gentled to the use of the bridle, which education can scarcely begin too early with the foal. The next stages of education, and specially all hair trimming, are best left to the next owner.

Essex Co., Va. P. S. HUNTER.

Library
N. C. State College

NOTES.

One of the finest estates in all North Carolina is Alamance Farm, the home of Mr. L. Banks Holt, bordering on the town of Graham, which is on the line of the Southern railway, 23 miles east of Greensboro. With the cares of a great manufacturing establishment resting upon his shoulders, and other business interests to look after, Mr. Holt is kept occupied in directing affairs, yet there are odd hours when a drive or a stroll over the farm brings recreation and relief from the cares of business. Alamance has been principally known for years as a stock farm, and as a breeding establishment it has ranked among the highest in North Carolina, certainly as the former home of the great pacing stallion John R. Gentry, 2:00½; the crack four-year old trotter, Baronet, 2:11¼; Lissa, 2:16¾; Burdell, 2:21; Alice Burlow, 2:22½; Flare, 2:26¾; Pepper Sauce, 2:27¼; Gregorian, 2:29¾, and others of less note; none other has attained such prominence. Gregorian was brought to the farm in 1892, when three years old, and his purchase was followed two years later by that of John R. Gentry, Baronet, and other choice specimens. Carrying the Alamance farm colors, in 1894, Gentry paced in 2:03¾, the world's record for pacing stallions, and equalled it a year later, when Baronet trotted to his record of 2:11¼. With a desire to reduce the stud, and to lessen the care of an extensive breeding establishment, most of the horses, including the stallions Gentry, Baronet, and Burdell, were disposed of at auction in New York in February, 1896, but Gregorian, a few choice brood mares, and some youngsters, were retained at the farm, while the herd of Shetland ponies, headed by the stallion, Governor Peck, a prize winner at the World's Fair, which had been purchased the previous year, were increased. Always partial to Gregorian, the handsome son of Prince George and Beltina, by Mansfield, has grown in favor with Mr. Holt, who frequently uses the chestnut stallion as a road horse, where his style, speed and perfect manners have installed him as a prime favorite. Very few of Gregorian's get have been handled for speed, but of those Glencoe has paced to a record of 2:25, and Rowdy Rob has trotted to one of 2:30.

The brood mare band at the farm includes Blondette, dam of Governor Holt, 2:15, by Leland, out of Minetto, by Kentucky Prince; Winnie D., dam of Hulman, 2:20, and Ginter, 2:24¼, by Hannis, out of Maud L., dam of Whitby, 2:18; Gretna Green, by Aberdeen, out of Happy Choice, by Happy Medium; Oneida Girl, by Thomas K, out of Fantina, dam of Jean Valjean, 2:14, by Alcæde; Sue H., by Woodburn Hambletonian, out of Alice, by Ashland Patchen; Coralyn, by Dictator, and Lou Graham, by Melville Chief.

In the big training barn, the farm trainer, William Chatman, has Mattie Holt, bay mare, 4, by Baronet, out of Killis, by Jay Bird, who started eight times during the past season was never behind the money. Killis, her dam, produced Flare, 2:26¾, who was sold from the farm to Matt Dwyer, of Buffalo, N. Y., and exported to Germany; Giles Mebane, brown colt, 3, by John Gentry, out of Winnie D., who is a pacer and of exquisite quality and finish; Maid of Alamance, chestnut filly, 3, by John R. Gentry, out of Lou Graham; chestnut filly, 3, by John R. Gentry, out of Blondette; bay filly, 3, by John R. Gentry, out of Oneida Girl; bay gelding, 3, by John R. Gentry, out of Lilly, a fine road mare of untraced breeding; bay filly, 3, by Baronet, out of Sue H.; Katherine Wharton, black filly, 3, by Baronet, out of Coralyn; bay filly, 2, by Gregorian, out of Gretna Green; bay gelding, 2, by Gregorian, out of Sue H.; chestnut gelding, 2, by Gregorian, out of Winnie D.; bay filly, 1, by Gregorian, out of Blondette, and chestnut gelding, 1, by Gregorian, out of Winnie D.

One of the handsomest and most highly improved country places in the State is The Horse Shoe, the home of Mr. Joseph Wilmer, in Culpeper county, near Rapidan, a station on the line of the Southern railway, between Charlottesville and Washington. In the midst of a section at one time pronounced among the most beautiful in all Virginia, the estate is bounded by the Rapidan river, which skirts it in the form of a horse shoe, hence the name. Within the boundary lines of The Horse Shoe are five hundred acres of land, of which three hundred and fifty are in sod that has not been upturned by a plowshare for more than a quarter of a century. The farm mansion is an imposing structure of the colonial style of architecture, and upon entering its broad doorway, the visitor is impressed with a pervading air of refinement and culture. In the library, which is a spacious apartment, the book cases are filled with numerous works by famous authors, many of them being heirlooms of priceless value bequeathed Mr. Wilmer by his father, the late Bishop Wilmer, who gathered portions of the collection during his travels through America and Europe. As at most other prominent Virginia estates, high-class horses have been bred at The Horse Shoe for generations, there being now at the farm descendants of Revenue, Lexington, imported Margrave and other noted sires.

More than three-quarters of a century ago, Mr. Wilmer's grandfather, Mr. Humberstone Skipwith, of Mecklenburg county, owned the famous Creeping Kate, by Sir Archy from Jenny Cockracy, the daughter of Potomac, about whom that eminent jurist, Judge Robert W. Hughes, has so frequently written.

In the great mare, Louise Mac, 2:09¾, by Little Corporal, 2:19, out of Marigold, by Jay Gould, 2:21¼, and Belton, Jr., by Belton, a son of Belmont, the former well known Virginian, Mr. A. B. Gwathmey, now a prominent member of the New York Cotton Exchange and President of the Manhattan Driving Club, has a grand pole team.

The bay gelding can show a 2:10 gait—still he has not the speed of the chestnut mare, who can reel off quarters in 30 seconds, a two minute clip, but they style up well together and drive almost like one horse. Shortly after purchase at the recent Fasig-Tipton sale in New York for $3 700, Mr. Gwathmey refused an offer of $5,000, wired from California, for the daughter of Little Corporal, the offer having been made by A. B. Spreckles, the sugar king, who wished to obtain Louise Mac as a mate for Dione, 2:09¼, the beautiful bay daughter of Eros and Gracie S., by Speculation.

In addition to Louise Mac and Belton, Mr. Gwathmey's private stables shelter the fast Virginia bred gelding, Albert C, 2:16½, and the grand looking big black mare, Belle G., 2:12¾, who has shown a quarter better than 30 seconds to wagon. BROAD ROCK.

Miscellaneous.

OUR CONTRIBUTORS.

In this issue will be found a number of reminiscent articles on Old Times in the South. Amongst the writers will be found Dr. W. H. Ruffner, so long Superintendent of Public Instruction of Virginia, and to whom the State is largely indebted for its present admirable system of public instruction; Capt. Richard Irby, the Secretary of Randolph Macon College, and long a large planter in Southside Virginia, and himself the descendant of a long line of old-time prosperous planters: Sam'l B. Woods, Esq., Commissioner of the University of Virginia, President of the State Horticultural Society, and a prosperous and progressive farmer and stock-breeder, of Piedmont Virginia; Maj. T. T. Towson Smith, of Flint Hill, Va., and others. We are sure these articles will be found full of interest to our readers, and that they will feel themselves indebted to these gentlemen for giving us such pictures of Virginia life when *The Planter* first commenced its career. We accord our thanks to them for favoring us with these articles.

THE STATE BOARD OF AGRICULTURE.

On the second page of this issue will be found a copy of the *first* bill ever passed into law by the Legislature of Virginia, providing for a State Board of Agriculture. This we have taken from the first volume of the *Southern Planter*, and we made the extract because of its dealing with a question s ill calling for the attention of the Legislature. Although Virginia set out to have an effective Board of Agriculture 60 years ago, up to this time she has failed to secure one which has given satisfaction to the agriculturists of the State. This first attempt was, like many attempts since made, an effort to obtain something for nothing, and like all such attempts was soon demonstrated to be a failure. If an object is worth having it is worth paying for. That a State Board of Agriculture is worth having is amply demonstrated by the work which State Boards are doing in some of the other States. But none of these successful boards are called upon to "make bricks without straw." Nor can we have a successful one in Virginia unless we are prepared to organize it on sound principles, and then to give it the means to do the work of which it is capable. The statute book wants purging of all existing legislation on the subject of a State Board of Agriculture or of a Commissioner of Agriculture, and a new law be enacted creating a representative board, with the power to appoint and pay its own officers and to hold them to strict accountability for the discharge of their duties. An appropriation of not less than $20 000 per year should be made from the State Treasury for the conduct of the work devolving on the board and for the salaries of its officers. All fees and other revenue collected by the board to be turned into the Treasury. Failing such action, any board created will be like the first one and every succeeding one up to this time—a failure.

REMINISCENCES OF THE PAST SIXTY YEARS.

Editor Southern Planter:

The history of *The Planter* lies entirely within my remembered experience, and whilst my name has not been continuously on its books, and whilst it has varied in excellence, I can testify to its highest character and great usefulness during the most, probably the whole of its career. My agricultural experience began in my school boy vacations on my grandfather's large farm, in Rockbridge county, some years before *The Planter* came into existence.

The meadows were cut with scythes in the hands of the strong men, whilst the old men and boys, and sometimes working women, windrowed the hay with rakes and two-pronged wooden forks, cut from the hickory patch. The grain cradle had just come into general use, but was criticised by some of the older men as decidedly inferior to the sickle. A leading branch of the winter's work was threshing the wheat crop with flails, or when the quantity was large, treading it out with horses. As in the case of the cradle, some old men fought the threshing machine when it came in, and not without reason, for the rough "thrash box," which at first came along, had to be stopped frequently for repairs, and I once knew a tooth to make a hole in the roof of a barn. The raging box was almost as dangerous as a gun at both ends.

It was about this time that Cyrus McCormick (our county man) was trying to utilize his father's gift of an embryo reaper by experiments and consultations with ingenious mechanics in Rockbridge and Augusta counties, some of whom afterward claimed credit for important suggestions, with how much justice I cannot say. You know what attacks have been made on the claims of this great inventor. Homer, Shakespeare and Milton have all had their titles to originality questioned, but the world still believes in Cyrus McCormick, and will not forget the assistance rendered by his brothers, Leander and William.

Corn in my early days was rarely cut up and shocked, and in my county was still more rarely top-

ped and bladed. The ears were usually pulled in the husk, and sometimes piled in the barn to be husked in the winter, but more commonly accumulated in a rick outside in preparation for the great event of the autumn, namely, the "Corn Shucking." I once took part, but found it as poor fun as "playing dig cellar by moonlight." It was great fun, however, to sit on the fence in a pleasant moonlight evening and witness the excitement of the contending parties, and listen to the glorious "corn songs." An old man has to put on his bifocal spectacles before he can see that the negroes are happier now than they used to be.

There being no market for hay, winter forage was superabundant for the comparatively few cattle then kept. In summer, stock cattle were ranged in the mountains where the peavine and rich weed, now almost exterminated, and better still, the rich forest leaves and twigs sent them home in the fall "booming fat."

Hemp-growing for the domestic manufacture of ropes and bagging had just been discontinued, but the hemp brakes and rope twisters could be seen in lumber-houses. Flax and wool were grown, and worked up into tow-linen, thread and stocking yarn, fulled cloth, jeans, flannel, linsey, carpets, etc. Hickory, walnut and black oak barks, varied with imported indigo and logwood, served for dyestuff.. In a word, it was the last period of the spinning-wheel, large and small, the reel, the winding blades, the hand loom, the wool cards and hand picking, the carding machine and fulling mill. It was also the declining period of the village chair-maker, hatter, saddler, shoemaker, wagon maker, and I may add, blacksmith; some of whom are gone forever, and others remain as mere shrunken survivals of a prosperous ancestry.

In my early days in this part of the State the wheat was turned into flour at our local mills, and much of the rye and corn turned into whiskey, the most of which, together with dried fruits, butter, etc., was hauled to Fredericksburg or Richmond, and exchanged for groceries, cotton yarn for weaving, small pieces of machinery for the spinning wheels and looms, and a little money. The immense covered road wagons of those days, drawn by four, five or six horses, sometimes decked with bells, made an inspiring spectacle, especially when a group of neighbors united in forming a caravan. Along the routes were places known as "stands," where the wagoner or cattle drover was sure of finding a *viaticum* suited to his wants. An occasional item of freight were skins of wild animals. Coon skins were said to be the currency of a neighboring county. One of my great grandfathers, in Shenandoah county, had a market wagon drawn by six Conestoga horses and covered with bear skins. He had a contract with the French Government to supply bear skins for the army.

These market wagons, besides bringing home supplies, would on their return, load with such freight as they could get to leave by the way or to deliver to merchants and others near home. Out of this developed regular transportation wagon lines which were wholly employed in hauling freight great distances. It became common to see long lines of well appointed road wagons, hauling merchandise even from Philadelphia the whole length of the Virginia Valley into Tennessee.

When the canals began to draw their slow lengths along the James and the Potomac rivers, trade sought new routes to market; but, when railroads came, the destroyer of country taverns, turnpikes and wagon lines and machinery superseded hand-work, the Virginia farm-life was rapidly modified; and, when the war came and slavery was abolished, Virginia was more changed in her agricultural features than in any other.

The large land holders of the Southern States had liberally patronized colleges, and were generally as intelligent on the subject of agriculture as any other class of land holders in the country—perhaps more so; and, whilst politics, literature, and social habits diverted their minds too much for the best results, many of them maintained the fertility of their lands by a good system of rotation and by the use of marl, lime, and the same clover and pea crops that have now become so popular. Certainly, the Virginia Valley lands were better farmed and more productive then than they are now. But, for fifteen or twenty years during and after the war, there was an almost unmitigated spoliation of our Southern lands; which is not surprising, all things considered. Having owned and operated farms for the last forty-seven years, I have anxiously watched the tendencies of this great public interest, and am happy to have observed for the last decade or more a sort of tendency toward improvement which can be relied on as permanent and cumulative. It is the result generally of the growth of intelligence and the march of improvement; but specially of Agricultural Experiment Stations and agricultural journals and other literature, basing their teachings on established facts, and urging farmers to employ scientific methods. The age of empiricism is rapidly passing away, and the methods of scientific investigation and practice are taking possession of the world.

There were always farmers in Virginia, such as John Taylor and Edmund Ruffin, whose whole mode of thought and management was scientific, and they did much to prepare the public mind for systematic experiment. The agricultural schools and universi-

ties of Europe, and agricultural courses in our own colleges and universities, powerfully aided in inaugurating the new agriculture. About the time that *The Southern Planter* came into existence the agricultural classes were attracted to scientific views by the controversy which Liebig's doctrines excited. I remember when his agricultural chemistry was published, and how his views were first adopted, and afterwards rejected; and now, behold, we see them substantially adopted again and taught by all our authorities. Liebig declared that what the farmers had to fear most was the exhaustion of the mineral elements of the soil. he maintaining that the nitrogenous elements could be drawn from the atmosphere. I think that Lawes and Gilbert were leading opponents of this view, they and others maintaining that the soil held a practically in exhaustible supply of all mineral elements required for the nutrition of plants, whilst the nitrogen was easily exhausted, and that the nitrogen of the air was not accessible. The now current doctrine as to the nitrogen-producing power of legumes accords with Liebig's theory, whilst experience has taught the importance of liberal applications of phosphoric acid and potash. The mineral elements are still admitted to be in the soil, but they are not yielded in available form rapidly enough for the largest results.

If these principles could be fully accepted and acted upon by our Southern agriculturists, the halcyon days would come rapidly. But it is essential to the carrying out of this or any other system of improvement that *live stock* should furnish a much larger feature in Southern land management than it has done. I wish that somebody would give a history of the fertilization of the barren half of Belgium by means of domestic animals. It contains a lesson for all time and all nations. Now in our Southern land there slumbers a victorious power that is not known to its own people. It is the natural home of the richest grasses of the world. I believe that the Bermuda grass stands first in protein. Then comes the Lespedeza, then blue grasses of different types, orchard grass, and a class of gigantic grasses, such as are not found even so far North as Virginia. The South is the home of the Alfalfa and the luxuriant Teosinte. The kaffir corn, indeed the whole family of sorghums, are best suited to the Southern climate; and so it is with the bean and pea family. Texas is developing prodigiously in the live stock branch—and now that the cattle fever may be controlled, the greatest obstacle heretofore existing has been removed.

The motto now should be, "Let there be light." All the forces of science and experiment are turned upon practical agriculture, and with the most inspiring, useful and abundant results. Agricultural departments and experimental stations issue most valuable reports and bulletins, but for popular enlightenment there is nothing equal to the agricultural journals—especially as these journals have as correspondents some of the ablest of the scientific experimenters. Here in these journals are brought together the individual farmer and the official experimenter, mediated by the able editor, who discusses and compares all facts and doctrines, and helps to make plain to every mind the best principles and methods. For this purpose in our Southern country, and especially in Virginia, I can recommend no other journal so highly as *The Southern Planter.*

Rockbridge Co., Va. W. H. RUFFNER.

VIRGINIA AS A LOCATION FOR FARMERS FROM OTHER STATES.

Editor Southern Planter:

I have often been asked why I did not write something for publication, giving my opinion of Virginia as a farming country. Having only been in the State a short time, I thought best to wait until I could have more knowledge from actual experience. Looks are often deceiving, and the farm liar is abroad in the land at all times. Landing here on the second day of July, 1898—having driven through from Indiana—I saw considerable of Indiana, Ohio, West Virginia, and most of the western part of Virginia, and I saw the country at its best all along the route; and although I expected to find Virginia in a worn-out condition, I must say that I have found it about the same as Indiana and Ohio in many respects, and the possibilities of it, when farmed with the same means and appliances and energy, is very much ahead of either Ohio or Indiana. Virginia only wants proper cultivation to outclass either of them as a farming State. Four years of devastating war financially destroyed the Virginia farmer, and for thirty years Virginia lands have gone down in value and been worn out by bad cultivation. The "Nigger and his mule" have simply plowed it out—exhausted it—and put nothing back; and now we find land selling here in the oldest of States at prices that will astonish Indiana and Ohio farmers.

People come here and see what a fine climate we have, and wonder why farmers are so poorly fixed. Of course many farms have been better kept up, and their owners are prosperous, but as a rule farms are all run down, and most of the farmers poor; in fact, a farmer's note is looked upon at the bank as about the poorest kind of collateral that can be offered.

I have spent a considerable part of my time here in doing some experimenting and in investigating the reasons why this state of affairs is found here, and, in my opinion, it is no fault of the land, but the fault of

the farmer. Too much carelessness, or, to call it by its right name, laziness. The land will grow anything if put in condition. It is simply a question of labor and skill; and the same amount of labor and judg ment expended on farm land here that is given in Ohio and Indiana will give equal or better returns. We all try to cover too much ground; that is another cause of failures here. A man with capital sufficient to properly work forty acres will, generally, attempt to handle three or four hundred acres; and so he soon gives up. These big old plantations ought to be cut up into small tracts, and no man ought to take up more land than he can properly cultivate. The new comer here ought first to decide on what particular kind of farming he is going to undertake; for a farmer with limited capital can no more operate all kinds of farming successfully than a merchant can operate all kinds of merchandising successfully on a small capital. In this way farming can be made a success, and in no other. Small capital, a small farm and a large amount of hard work, properly directed, will succeed anywhere, as will also large capital with a large amount of land, and in no State have I found a better show for either rich or poor men than right here in Old Virginia.

Any man almost can make a start here with a very little capital, raising tobacco. For this he only needs *three or four acres*—and he can buy this three or four acres for a trifle. Superior tobacco land can be bought for from three to five dollars per acre here; such land as would sell for one hundred dollars per acre in Ohio. In fact, I have seen good tobacco land there rent for fifteen dollars per year readily; and yet we have here thousands of acres of it for sale at three to five dollars. Why not come here and buy land? Why rent anywhere? Why be poor any longer? Come here—the home of the tobacco-plant—and make a home for your family, where you can be independent of every one. This is the poor man's opportunity. And to the capitalist, or farmer with plenty of money, I would say that no place offers better or safer invest ments than these old Virginia lands for operations in stock farming. In stock farming the wise man with money can here do better handling good beef cattle than he can in any other business I know of. A good herd of beef cattle is better than any bank or railroad stocks. You can double your money every three years in beef cattle. The cattle business is surer to pay dividends than any kind of investment I know of, to say nothing of the improvement the cattle will put on your land, thereby increasing the value of the land itself.

The most essential points in the cattle business are grass and water. These two things are found here in great abundance, and for summer grazing nothing beats Virginia grass. Some call this broom sedge. I know that it is a mistake; it is what we call Buffalo grass in the West, and, in my opinion, is a superior cattle grass for eight months out of twelve, and equal to blue grass the other four months. I have tested this, and know for a fact that cattle for beef will thrive on it for eight months, and come off ready for the market.

I would say to farmers with ready money, here is the place for you. You can make it pay here, and no mistake. Clover is good to fatten cattl , but I don't want clover now at all. Cow peas and Virginia wild grass beats it out of sight. We can and do grow clover and every other kind of feed here that grows anywhere else; it only needs sowing—that is all.

Nottoway Co., Va. HENRY HENDRIX.

VIRGINIA AGRICULTURE NEEDS STATE AID.

An Appeal to Legislators.

Editor Southern Planter:

The closing year of the nineteenth century finds all the industries of our country active, and all availing themselves of the benefits derived from modern invention and scientific research. Accurate knowledge, resulting from well-conducted investigation, takes the place of guess-work and thumb-rule, guiding and re-enforcing human judgment and experience. The business of farming is no exception. Reluctantly and slowly, but fully, at last, agriculture is recognizing the need of all the aid it can secure, and it is now accepting and rapidly adopting the lessons of modern science. Appreciative of the situation, the present generation cannot wait for the one "rising" to learn the new things, and various agencies have been called into action by which practical farmers may be taught. Organizations of farmers in associations, general and special, clubs and granges, with their conventions and meetings, and especially the Institutes, are doing a great work educationally, in the nature of adult schools.

In numerous States this good work is fostered and promoted by officials and boards specially created for the purpose, and by liberal and wise expenditure of public funds. The agricultural experiment stations, during the last decade, have been, collectively, of inestimable value, and if farmers have not put these lessons into practice, it is their own fault.

Careful observers must admit that the agricultural communities which are most progressive and prosperous in this country at the present time are those in which these educational agencies have been most active; where public meetings and discussions—purely

agricultural—prevail, and where books and journals abound in the farm homes, and reading and study are a regular part of the day's work. And these communities generally lie within States which are foremost in giving public aid to the farming interests.

The agricultural stations, schools and colleges are the centres for investigation and teaching. The most successful agencies for dissemination, carrying the light of modern science to the farms, and pointing out the best methods of practical application, are the Granges and the Institutes. The order of Patrons of Husbandry is purely voluntary, social and educational, for mutual benefit, and the Granges deserve to be multiplied and well sustained. The Farmers' Institutes require public management and support; they are most effective and show the best results where organized and conducted by State officials and with liberal appropriations. The efficiency of both these agencies is largely due to the absolute exclusion of politics, partisanship and sectarianism, and consistent devotion to the affairs of the farm, garden and household.

Virginia is essentially an agricultural State. A vast majority of our people live, directly or indirectly, upon the products of the soil. Upon the success of our farming depends the general prosperity. No State is more richly endowed with variety of soil and climate and natural capacity for abundant and varied production. But how stands the farming interests of the old Commonwealth to day, as compared with those of most of her sister States? And what is Virginia doing towards applying these modern methods to her agricultural advancement? The facts are, alas! too obvious. The State Agricultural Society is practically dead, farmers' clubs are few, and the granges have declined or dissolved. The State agencies are few and weak. The State Board of Agriculture exists only in name; without ample public funds and more definite aims, it should be abolished. A single State commissioner would be better. But this officer needs to have his functions enlarged and be given the means to extend his usefulness. The attempts at holding Farmers' Institutes (formerly spasmodic and infrequent) should be revived and the work systematized, liberally supported, and energetically conducted. The State College has been rehabilitated, and, indeed, revolutionized. As a technical school it is in admirable condition. But the change of name was unfortunate for our farming interests, and the broadening and development of the Polytechnic Institute has in itself overshadowed and dwarfed the Agricultural School and the Agricultural Experiment Station. The influence of the latter is nothing like what it should be; not one farmer in forty in the State knows that such an institution exists. The most active single agency for agricultural progress in Virginia to-day is the *Southern Planter*. The recent improvement and the prosperous air of this excellent journal is really the most hopeful sign within the agricultural horizon of the State. Yet it is to be feared that Virginia does not furnish as large a part of the patronage as it ought.

Under these circumstances may not a proper appeal be made to our State Legislature to take this whole subject under serious consideration? What greater public service can be rendered at the present session than the enactment of well-devised laws for the promotion of agriculture in this Commonwealth? Existing agencies should be unified, re-organized, vitalized. New plans should be formed and liberal appropriations made; in no way can a reasonable part of the public funds be made more useful, if wisely expended. Abundant examples can be found in other States of measures which are statesmanlike, popular and efficient, showing practical results which fully justify all their cost. Let our law-makers study these examples. Virginia has been too long lagging behind in the march of agricultural progress.

HENRY E. ALVORD.

Fairfax County, Va.

SIXTY YEARS AGO—AND NOW?

Editor Southern Planter:

Your request for an article on the improvement of agriculture in Virginia in the last sixty years embarrasses me somewhat, for my recollection does not extend quite that far back, and the sources of information at my disposal are decidedly meagre. But as I wish to show my appreciation of the good work *The Planter* is doing for agriculture in Virginia, the request becomes a command.

My earliest impressions of Virginia farms were received the spring after the war, when as a child I went from Alexandria to one of the most fertile farms in Fauquier county. The railroad destroyed during the war had not been rebuilt, and a big farm wagon, a carriage and saddle-horses afforded means of conveyance for quite a party of ladies, gentlemen and children. In a three days' journey we drove over the fields by the most direct route, and saw *not one panel of fence.* Occasionally two great, grim gate-posts stood out on some hilltop would show where a gate and fence had been. There were no haystacks, no cattle, no barns, and most of the dwellings were in ruins; white bones glistened everywhere; cannon balls and unexploded shells were frequently to be seen in our path, and a pocketful of minie-balls was picked up in walking behind the wagon. These were sorry crops for such fair fields, and told in sternest tones how complete was the desolation of war. As I write this to-day on board a Southern train, passing over

the same general route, the contrast is marked; white farm-houses, barns, and out buildings pass quickly by; well-fenced fields, comfortable-looking stacks of hay and ricks of straw, hills browsed by cattle, or green with wheat and winter oats, present a far more attractive picture and suggest a measure of prosperity and plenty. In considering this question we should not forget that Virginia at the close of the war was a scarred and desolate battle field; and that her people, impoverished, with depleted ranks, with no outside capital or aid, have wrought out the present transformation. It has marked for them a struggle more heroic than that of war, for they suffered the deprivations of the latter without its stimulating glory.

I well remember the harvest scenes of that time. A troop of darkies, enthusiastic, jolly, happy as the day was long, did the work. Twenty cradles going up the field with long swinging stroke, keeping perfect time, was the poetry of motion! Each cradler was followed by a man to tie bundles, by a boy or woman to carry them, and by the shockers. There was great rivalry among the cradlers, especially if some of them were darkies from other plantations; racing was often indulged in, and great was the glory of the cradler who set a killing pace and knocked the strangers out. The exultant cry of the racer, the swish of the cradlers, the clanking of the whetstones, as all stopped to sharpen, and the song of the bundle carriers filled the air with music. At midday, under the shade of oaks or maples and by the cool waters of a spring, dinner was spread, always an extra feast, accompanied by an extra dram. To eat dinner with the "hands," and catch young hares as they were scared out into the stubble, were boyish delights that memory will always cherish. There were plenty of partridges in those days, for the stubble was long and uneven, and many a handful of grain escaped the bundle and the rake. That was the old way. Now the harvest field no longer swarms with busy crowd, no more is song heard among the fallen grain—the fun is all gone. The metallic whir of the McCormick and the business like click of the reel have no suggestion of music, and the lonesome shockers follow their solitary rounds. It is business pure and simple, saving the farmer a long pay-roll and cleaning the field so that Ruth's occupation is gone. This illustrates the advance in all farm machinery, and we note it, albeit not without some regret, as an improvement.

The immense trucking industry in the Norfolk section, worth millions of dollars per year, has developed since 1865, and the same may be said of the fruit industry in the State. Since the war the late Dr. Boaz, one of the most prominent citizens of Albemarle, planted 1,000 Albemarle pippin trees. So little was thought of this as a business venture that his neighbors, who were successful farmers, told him that he would one day dig up his trees to put the land in tobacco. The sequel has demonstrated Dr. Boaz' wisdom, for this orchard has some seasons paid $400.00 per acre; one year $15,000 was declined for the crop of apples, which would have paid at the rate of $600.00 per acre. Commercial orchards are now being planted, and the development of this industry may be said to have fairly begun.

The short notice given me has not permitted a proper investigation of the agricultural records of the State, and I am not able to determine whether or not there has been any real improvement in agriculture in Virginia in the last 60 years. I have begun such an investigation, and I hope to answer the question more intelligently in a subsequent number of *The Planter*. In some sections of the State there has been a great improvement; whether this is true of the whole State is doubtful. There are great tracts of land which were formerly fruitful that have lain untilled since the war; and as a consequence there are whole counties that are not producing one tenth of what they did 60 years ago. My friend, Mr. Frederick Page, librarian of the University of Virginia, mentioned one plantation that in his father's time produced 6,000 bushels of wheat which now does not produce 600. In olden times the lands of Albemarle yielded regularly from 40 to 50 bushels of wheat per acre; now such a thing is exceedingly rare. The soil has not been cultivated with the intelligent care that preserves its fertility, and though it improves readily we are not now as a State pursuing a course that will bring it back to its former fruitfulness.. We need in our State to-day more people to cultivate the idle lands, and more intelligent methods on the part of our farmers now at work. It would be the greatest improvement of the century if Virginia could have a stronger Agricultural Department, Farmers' Institutes, larger appropriations to our agricultural colleges, and in every farm-house a good farm paper—like *The Planter*—and a good farm library—it need not be an expensive one. If this policy were pursued for ten years it would be a pleasure to chronicle the improvement in that time. The census of 1910 compared with 1900 would mark a progress simply wonderful. We have the opportunity, let us be equal to the occasion.

SAM'L B. WOODS.

Albemarle Co., Va.

A SIMPLE IRRIGATING PLANT.

A half-inch pipe with a four-way spray upon it, and twenty feet long, set up in the centre of an acre of ground and supplied with water at twenty five-pound pressure, will sprinkle the whole acre in fine rain one-fourth to one half inch in the 10 to 12 hours at night. A wind-mill will supply water for ten acres in this way.

B. S. S.

REPORT OF MEETING OF THE WOODLAWN FARMERS' CLUB, VA.

Pursuant to adjournment, the Woodlawn Farmers' Club met on the 9th of December at Engleside, the residence of Mr. and Mrs. C. Lukens, and came to order at the call of the President, E. E. Mason, about 4 P. M.

The minutes of the November meeting were read and approved.

The Secretary reported the receipt of the December list of publications issued by the Department of Agriculture.

Mr. Wright said he thought that as there is often a great deal of good matter in these publications, the Club should have one copy of each to use in the discussions at the meetings.

Major H. E. Alvord, Chief of the Dairy Division of Department of Agriculture, being in attendance, the President introduced him to the Club, saying that the committee appointed to wait upon the Secretary of Agriculture, finding that he could not probably attend this meeting, had invited Major Alvord to attend.

Major Alvord then proceeded to lead a discussion on the general topic of "What Science has done in recent years in connection with the industry of dairying," remarking that it was pressure of business and not lack of interest that had kept the Secretary away.

Major Alvord said that the researches of science are directed first, towards the verification of old facts, and secondly, to the establishment of new ones. In relation to dairy cattle, science has pointed out the typical dairy cow. Herdsmen can arrive at a possession of the best stock for their purpose by breeding and selection, or by purchase of others who have made breeding and selection a business. By the improved tests that science has introduced the breeder is better able to make selections and weed out the unprofitable stock. Science has taught us something in regard to the care of stock and the economy of shelter; also of judicious and injudicious shelter. A few years ago we drifted into the extreme by housing too closely and undermining the health of the herd. The rapid spread of tuberculosis was no doubt in part due to too close confinement.

C. Lukens asked What is the proper temperature for winter stables?

Major Alvord recommended 60° or 70° F., if the air is frequently changed; 40° the lowest. This refers to almost constant stabling with exercise only in very sheltered places and mild weather.

Mr. Wright thought that under such high temperatures, nature would soon forget to provide the cow with the usual winter clothing, thus incurring additional risks.

"Of course," Major Alvord said, "the herdsman must use great judgment and not subject the cow to a shock or chill."

In the matter of feeding, Major Alvord said, we have gained. Science, by a long series of experiments and investigations, has fixed standards for feeding rations. Food stuffs have been analyzed and their feeding value ascertained so that the business is reduced to scientific or rational feeding for the desired purpose.

Mr. Roberts asked if there was any reliable work giving tabulations and formulæ for feeding, and Major Alvord recommended Prof. Henry's "Feeds and Feeding" as being the best and most comprehensive. He also said that tables were given in a number of Experiment Station Bulletins, and that one of the most useful tables gives the digestible contents of the foods, so that one may always know how much of any substance he is feeding is utilized by the animal. The indigestible part of the food is indispensable, however, as the animal is so constituted as to require bulk.

Major Alvord then explained the balancing of rations, and said that the proportion of nitrogenous or flesh forming matter to the carbonaceous or fat and heat formers, in good pasture grass being 1 to 5, that is taken as a standard, and a ration is close or wide as it varies one way or the other from this standard. The herdsman has a wide range of foods to choose from; cotton-seed meal having the highest percentage of nitrogenous matter and oat straw the lowest.

Mr. Gillingham asked if apples would dry a cow, as is generally supposed?

Major Alvord thought they would not, and that, in reasonable quantities, they would not be otherwise injurious.

Mr. Harrison asked if it is possible to change the quality of milk by feeding?

Major Alvord replied that all well conducted experiments point to the fact that feed does not change the quality of milk, but that this statement needs a great deal of explanation. Of course, if a cow is not properly fed she will not be up to her standard of milk, and then proper feeding on a well balanced ration will cause her to improve, and so long as her ration is properly balanced the per cent. of fat will not change. You can feed water into milk, but it is impossible to feed fat into it beyond the normal production of the cow. To feed an unbalanced ration is to underfeed. The long line of breeding has a greater effect on the quality of milk than the feed. A good cow will always be a good one, except under really barbarous treatment, and though the poor cow may be somewhat improved if taken in time, she will never be a good one on the very best of feed. Fat may be fed out of the milk by starvation.

Major Alvord thinks that the fat measures the value of the milk for all commercial purposes, and that the time is coming when all milk will be graded and sold according to the guaranteed per cent. of fat. The Experiment Stations of the following States were mentioned as having made the most advances in dairy work: Vermont, Massachusetts, New York, Pennsylvania, Iowa, Wisconsin and Minnesota.

It was thought that our Virginia Station has not done what it might in agricultural investigation, but Major Alvord said that was not the fault of the Director. The College and Station were very much run down when Dr. McBryde assumed control, and he deserves great credit for the improvement he has made in the former. His time has been occupied to the full measure of his strength in reforming the College, and the Station work has not been developed as it should be, and pressure should be brought to bear on the Board of Visitors to the end that they recommend and insist on the development of the Station.

Mr. Lukens considered it a great misfortune that the Station was not more centrally located.

Major Alvord believed the Station too inaccessible, but that it can do a great good where it is. There might be branch stations throughout the State. He would not advise dividing the Government appropriation between two or more stations.

Mr. Wright asked if our natural pasture grasses were not inferior to those of the North and West?

Major Alvord replied that he thought they were not so good as those of the blue-grass regions and mountain slopes.

Mr. Roberts asked what is the coming dairy cow?

Major Alvord replied: A cow that will give about 20 lbs. of milk per day for 215 or 220 days, averaging about 4 per cent. fat. The races of cows that give the highest percentage of butter are those of the Channel Islands, and by breeding with them we may improve our herds. It is generally conceded that quality goes with the sire and quantity with the dam.

Mr. Wright thought there was room for missionary work in the raising of dairy cows. The demand exceeded the supply, so that almost any scrub of a cow will bring what was a few years ago thought to be a fair price for a good cow.

A unanimous vote of thanks was tendered Major Alvord for the pleasure and interest he had added to the meeting; and the Club adjourned to meet at Bay View, the residence of Mr. and Mrs. A. H. Roberts, Woodlawn, Va., in January, on the last Saturday preceding the full moon.

CHAS. M. PIDGEON, *Secretary.*

Mention the *Planter* when you write to advertisers.

AGRICULTURE IN SOUTHSIDE VIRGINIA SIXTY YEARS AGO.

Editor Southern Planter:

Sixty years ago I was a boy at College in my fifteenth year, beginning work on Greek "roots;" about as hard work as digging up dogwood roots in a new ground five years afterwards. The most pleasant thing, and one I coveted most to enjoy, was, "Tityrus lounging under a wide spreading beech (elm) tree." As a rule, the College boys of that period thought and studied little about farming. That business was mainly relegated to the overseer, so far at least as it concerned the younger people of the family. The times were not favorable to agriculture for more reasons than one. The year 1840 was one of intense political excitement. The Jacksonian Democrats had long been in power. The Whig party, composed of young and ambitious men, to a large extent, inaugurated a new system of political tactics. Gen. Harrison and John Tyler, "Tippecanoe and Tyler too," "Log cabins and Hard cider," and "Same Old Coon," were emblazoned on their banners. These, more than the principles involved, carried the day. The deplorable financial condition of the country, making any change desirable to the multitude, who then, as now, understood little of the causes of financial trouble, contributed no little to a change in administration. One journal said, "The financial affairs of the country, public and private, are in a 'mixed up state.' The agricultural affairs of the country are in a desperate state."

This condition of affairs was not the result of governmental administration, though the Administration got the blame for it. There had been a wild speculation pervading the whole Southern country. Cotton had been, a few years previous to this year, twenty cents a pound. There seemed to be no limit to the Southern planter's profits. Everybody went wild, and speculation in land, and negroes for the cotton fields, had no bounds. In Virginia, the "Morus-multicaulis fever" broke out, and raged for a time. Negro men sold for $1,000 apiece. The country banks discounted freely, making loans on any and everything. In 1840 cotton had fallen to 7 and 8 cents. The banks had suspended "specie payment," and a collapse, such as existed a few years ago, only more general, had come. The wrecks of financial failures were all around and everywhere. Exchange on New York in Virginia was 8 and 10 per cent. premium, while in Mississippi it was 80 per cent.

The crop of tobacco inspected in Virginia in 1840 was 58,000 hogsheads, the larger portion of it made in Southside Virginia, as the following figures will show:

INSPECTIONS.

Petersburg	14,123
Lynchburg	13,613
Farmville	4,552
Clarksville	2,710
Danville	927
	35,925
Richmond	20,738
Other points	1,337

The price of tobacco ranged from $3 to $9, averaging about $5.

Wheat was not extensively raised, the cost of transportation except on navigable streams, having been very heavy—say, for forty miles by wagon, 25 cents per bushel. The price in the other markets was $1 to $1.10 per bushel.

Corn being equally difficult of transportation, and only bringing 50 cents per bushel, was sent to the markets only in small quantities.

At these prices, thrifty and industrious planters did live and make money, for in that day economy and frugality prevailed largely in the rural portions of the Southside. Boys wore home-spun, and home-woven, and home-made clothes, made of home raised materials. There was but one ready-made clothing store in Petersburg at that day, and I well recollect the first coat I ever saw from such a house. Leather was made at home, and every large farm had its shoemaker, as well as spinners, and weavers of cotton and wool.

Little was bought beyond sugar and coffee and some smaller items. Plows (such as they were), "bar-share," or "bar-shear," and "trowel hoes," were made at the blacksmith shop at home, or at the corners of the road. These required but little iron, which the wagons carrying the tobacco to market brought back along with other supplies.

There were few railroads at that day. One line extended from Richmond to Petersburg; thence to Gaston, N. C.; one from Petersburg to City Point, and one from Weldon, N. C., to Portsmouth, Va. These were mainly for travellers between the Northern and Southern cities. They were little used by planters as carriers of crops. Their crops were mainly carried to market by their own wagons and teams, or by "road-wagoners," as they were called. On the main thoroughfare, such as Cocke's road, leading from Petersburg to Clarksville on the Roanoke, they moved slowly along in sections of two to twenty. This was a necessity, for the teams had to be doubled frequently in order to get through the mud-holes, which were not "few nor far between," and some of them were thought to be like a certain "pit," that used to be oftener referred to in those days than in these. How those wagoners ever made their trips it is hard to say. At a certain lane in Cocke's road, I once saw a horse that had fallen in a hole full of water and was drowned before he could be gotten out. It was in this lane, as the story went, that a certain prominent citizen, when passing, saw a hat in the mud and reached down to pick it up. To his astonishment, he found a man's head under it. When he began to pity the unfortunate fellow, the latter said, "I am in a predicament, my friend, but my horse is in a worse fix than I am, for I am on his back." Worse stories have been told than this on slighter foundations. But the horse-drowning led to the building of a plank-road in after years, and better grading, though I am sorry to say the plank-road, though good at first, was short-lived, and the old road is now, in some places, easily traversed, *in the winter*, when the ice will bear one's weight and he has on a pair of skates.

I have referred to the "Morus-multicaulis fever," which subsided, leaving many who had been impoverished and few who had been enriched. Nevertheless, a number endeavored to make something from *silk-culture*. I recollect seeing a "coocoonery" near Boydton, Va., with the worms spinning the silk. As practical a man as Edmund Ruffin, Esq., the notable editor of the *Farmers' Register*, and the great advocate and promoter of the marl and lime improvement, and to whom the State is indebted more than to the whole race of politicians put together, seems to have been interested in the silk-culture. In his journal of 1840, Vol. VIII (to which I am indebted for many of the statistics given and other information), he published fifteen articles on the subject. But the industry never prospered, and soon died out. The Morus-multicaulis plants lived on, however, and were browzed by cattle, which seemed, like the silk-worm, to love the leaves.

The use of marl in the counties where it was found, east of Petersburg, was making much advance in 1840. In the volume of the *Register* referred to, the editor published twenty articles on the subject. But it was impossible to use it except in the immediate vicinity of the pit from which it was dug. Some of the farmers above Petersburg tried lime as a substitute, but it was of doubtful benefit, and hence was only used as a part of "compost," and then it frequently did more harm than good from improper usage.

What was most advocated by Mr. Ruffin, and a few of the most progressive farmers in 1840, was a proper rotation of crops of wheat, grain, and tobacco, alternating with clover, peas, and grasses. This, when properly practiced, proved to be the true and fruitful solution of farm prosperity, and increased in favor until the war.

In the counties constituting the "Black-belt," in

1840, tobacco constituted the main money crop. The rotation was wheat, clover, or grass, or grazing (what was called "rest") tobacco, or corn, the "three year rotation system." This, where grazing took the place of clover or grass, with an overseer who cared only for a crop and nothing for the land, soon brought a field to gullies and galls, until all the original forest was destroyed, and then began the clearing of the second growth, maybe the third, which bountiful Nature had used to restore the primitive fertility.

The only fertilizers used were home-made. Stable manure and farm-pen manure were all devoted to tobacco lots. A few years subsequent to 1840, the system of composting called the "Bommer" system, went largely into practice, and served to widen the area of improved land.

A "new ground" was opened every year from the forest, which in many cases was successfully cultivated until it was worn out.

It is needless to say that the labor generally was all done on the large farms by the negroes. When these were properly managed and cared for, they made the best laborers the State has ever had. The mansions were served by negro butlers and maids, who generally had a good time, and were polite and faithful. The sound of the spinning-wheel and the loom made home-music, and the mistress of the household, beside dispensing generous hospitality, had the oversight of the provisions for the servants as well as her own children. Her office was not a sinecure. Such a system of masters and servants, of mistress and maids, moving along in many homes with good will on both sides, the world never saw and will never see again. The civilization of Southside Virginia had some dark spots—especially dark to those who looked at them from afar—but no system the world has ever seen, nursed and sent out a knightlier set of gentlemen, and, with all its faults, it must have had some of the best elements that ever made women pure and men brave.

It would have been much more grateful and pleasant for this writer to have written of Virginia agriculture in the decade of 1851–1861—the golden era of the State. If the *Southern Planter* lives to celebrate its seventieth anniversary, and I should be alive, I will, if called upon, write of this period, during which I was permitted to take an active part.

Wishing the *Planter* many anniversaries—even *ad infinitum*.

Hanover Co., Va. RICH'D IRBY.

How many of our readers will start 1900 knowing just how they stand financially? Probably not one in twenty. Whether you keep accounts or not, you will be benefitted by "squaring up" things now.

SIXTY YEARS' CHANGES.

Editor Southern Planter:

Yours informing me of the sixtieth anniversary issue of the *Planter* to hand. I would love dearly to send in its pages cheerful greetings to my fellow farmers, congratulating them upon the advances made from the reap hook and cradle, the mowing scythe and hand rake to the self binding reaper, mowing machine and horse rake—from the old pepper box threshing machine, when we fanned wheat a week or more from chaff pens after we had done threshing, to the self-moving steam thresher—from the horrid custom of root breaking in corn culture, where the test of plowmanship was the exhibition of the most broken roots on the plow at the end of row, to the present deep plowing before planting, followed by shallow cultivation and the dust mulch—from the *moving* of barns to get rid of the huge piles of accumulated and wasted manure, to the sowing of legumes to aid the now carefully saved and utilized manure—from the wasteful, careless stock feeding, which prided itself upon having so fed a steer through the winter that it was able in the spring of the year to walk down a hill without falling, to the present balanced ration that fits our cattle for European markets—from the former poor quality of our fruit to the present finely developed sprayed apple, that tempts foreign lands to buy millions of dollars worth of the same.

But especially do I wish to congratulate all on the decided advance when we got the Commissioner of Agriculture into the Cabinet, and thus secured recognition for our calling at the hands of the government, and set on foot that advance in scientific agricultural teaching which has been so ably championed by the best agricultural journals, and which now enables us to enjoy the *Southern Planter* of sixty years' standing, growing old so gracefully and usefully, with a host of advanced and lucid writers, such as Massey and Terry, who really deserve a place in the Cabinet, and the practical results of which advanced agricultural teaching has made our nation (with its eighty one billions of property) the richest nation on earth.

With the highest personal regard,

Fauquier Co., Va. T. TOWSON SMITH.

A PLEA FOR THE JIMSON WEED.

Editor Southern Planter:

In your last edition "Caution" condemns the "Jimson Weed" so thoroughly I fear he does not know its medicinal worth. For reducing swellings and inflammations, it is unequaled. When one of our boys gets a "stone bruise" we bind the green leaves to it, and they relieve immediately. I have seen the

"Darkies" bind the leaves to their heads for headache (don't think I could stand the odor). Then we take the leaves (or seed) and make the best salve ever known for cuts, burns, and bruises, and for piles it has no equal. I *know* whereof I speak.

Albemarle Co., Va. "CAUTION No. 2."

QUARANTINE NOTICE.

COMMONWEALTH OF VIRGINIA,
OFFICE OF STATE VETERINARIAN,
BLACKSBURG, VA., Dec. 8 1899.

In accordance with the recommendation of the Inter State Association of Live Stock Sanitary Boards, it is probable that the Federal and State cattle quarantine rules and regulations will go into effect on the first day of January, 1900, and that the quarantine line running through Albemarle, Amherst, Fluvanna, and Nelson counties, will probably go into effect on the 15th day of February, 1900.

Parties wishing to transport cattle across said lines will do well to bear these dates in mind, as no permits will be given after the quarantine goes into effect.

CHARLES MCCULLOCH, M. D., V. S.,
State Veterinarian.

TO GROW HEMP IN FLORIDA.

Some Kentucky hemp men have obtained a considerable tract of land of the F. C. & P. R. R., in Florida, and options upon more, for the purpose of establishing an enormous China hemp ranch. Experiments in growing hemp have been made during the past three years, but with some uncertain results from dry spring weather and the hot weather of summer killing the seed before germinating. The Experiment Station at Lake City is planting hemp this winter, as is Colonel McQuarrie, of the West Florida Agricultural Society, at De Funiack Springs. U. S. Senator Mitchell, who owns a considerable tract near Jacksonville, and the Florida Improvement Company, are interested.

S. S. B.

THE FENCE LAW CASE.

This case is now set down on the docket of the Court of Appeals, and is expected to be called for argument early in January. We would ask all who have not yet sent in their names as subscribers to the cost of obtaining a decision on this very important question for farmers, and who are willing to do so, to let us hear from them at once. There is need for more money than is yet subscribed to pay the agreed fee to the attorneys if the case is won and for the court fees: If the decision should sustain the contention that the present law is unconstitutional, as we firmly believe it will do, then farmers will be saved thousands of dollars every year for fences. Surely it is worth while to contribute towards the cost of obtaining a decision upon the question.

RED POLL MILKING RECORD.

A noteworthy milking record has been established by the Red Poll cow, Crocus, which belonged to the famous Norfolk dairy herd at Whittingham. She gave birth to her third calf on May 11th, 1890, since which date she continued uninterruptedly in milk till September 28, 1899, a period of over nine years, her milk yield in the last week of her life being at the rate of 43¾ lbs., or nearly 4½ gallons. During the nine years and four months that she was continuously in milk, she yielded altogether 50,428 lbs., or nearly 23 tons of milk. Over the last five years, the average quantity of butter fat in her milk was as high as 4.3 per cent. Her live weight, when sent to the market, after being fed on grass feed for the last six months of her life, was 1,159 lbs. In the nine years since her last calving she gave something like 45 times her own weight in milk, and her average production during that period was 5,403 lbs. of milk, or considerably over 500 gallons per year. For a moderate sized cow, this is a remarkable performance, which has aroused much interest amongst the breeders of Red Polls.—*The Times, London, Eng.*

POSTAL DIFFICULTIES IN 1841.

In the *Planter* for April, 1841, we find the following notice:

"POSTAGE.—We inadvertently, in our last number, gave our assent to the transmission of subscriptions at our expense. We find that we were rather *green* in doing so. Postmasters to whom, as a class, we beg to return our thanks for the courtesy we have received at their hands, will always frank such communications so as to save the expense to both parties. Our eyes were opened to the necessity of making this requisition by the following circumstances: A gentleman wrote to us requesting us to send our first number for examination. We paid *twelve and a half cents* for the request and complied with it. He then said he would like to see the second number. This also was sent, and another *twelve and a half cents* paid. This morning we received his enclosure of one dollar, for which we had to pay *twenty five cents*, leaving us the net sum of fifty cents for the year's subscription—a good deal less than the paper cost us."

CASTRATION.

Those having the management of cattle or sheep must have been struck by a similar cause producing an exactly contrary effect. In emasculating the male of the former, a longer growth of horn takes place, while in its application to the male of the latter animals the growth of horn is very much lessened; but we find the law governing the two effects consistent, in that, the horn growth of the female in cattle is longer than in the male, but it is the reverse in sheep, the length of growth being more developed in the male. It would, therefore, tend to sustain the proposition that sex is not inherent in the embryo, but is solely of extraneous growth.

W. M.

THE
Southern Planter
PUBLISHED BY
THE SOUTHERN PLANTER PUBLISHING COMP'Y,
RICHMOND, VA.

ISSUED ON 1ST OF EACH MONTH.

J. F. JACKSON,
Editor and General Manager.

B. MORGAN SHEPHERD,
BUSINESS MANAGER.

TERMS FOR ADVERTISING.
Rate card furnished on application.

TERMS OF SUBSCRIPTION.

The Southern Planter is mailed to subscribers in the United States and Canada at 50c. per annum; all foreign countries, 75c.

Remittances should be made direct to this office, either by Registered Letter or Money Order, which will be at our risk. When made otherwise we cannot be responsible.

Always give the Name of the Post Office to which your paper is sent. Your name cannot be found on our books unless this is done.

The Date on your Label shows to what time your subscription is paid.

Subscribers failing to receive their paper promptly and regularly, will confer a favor by reporting the fact at once.

We Invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles. Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,
RICHMOND, VA.

PUBLISHERS' NOTES.

Our Special Issue.

We are sending out a very large edition of this issue to the farmers of the Southern States. Many of the copies will be sent to persons whose names have been given us by subscribers. Other copies are being sent to the largest and best farmers in the different sections, whose names and addresses we have gathered specially for this purpose. We ask that all these will give the journal a careful reading. In its main features, it is just such an issue as we make every month of the year. Can you afford to continue to farm without becoming a regular reader of *The Planter?* We think not, and this is what thousands of our regular readers say. Send us on 50 cents either in a money order, cheque, coin or stamps, and give the *Planter* a trial for one year. We have never been called on to beg for a continuance of a subscription once started. The renewal comes unasked.

BOWSHER FEED MILLS.

We have received three circulars from the B. N. P. Bowsher Co., South Bend, Ind., descriptive of their well known Feed Mills. They will be sent free to any one interested, on receipt of request.

SURE CROPS depend on rich, mellow land. Rich, mellow land depends on proper drainage. Proper drainage depends on the use of drain tile. We would like to tell you how to install an effective system of drainage, and quote prices on

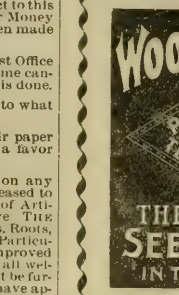
Farm Drain Tile

Fire Bricks, Drain Tile. **Powhatan Clay Mfg. Co., Richmond, Va.** Artistic Front Bricks.

DRAIN YOUR LAND and use AGRICULTURAL LIME. You will double your crops. We sell all sizes

Farm Drain Tile,

TERRA COTTA PIPE. LIME, CEMENT, PLASTER, FIRE BRICKS, &c.
Write for prices. **WARNER MOORE & CO., Richmond, Va.**



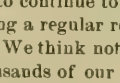
Wood's Seeds are largely used in every Southern State and have achieved the highest reputation for quality, productiveness and adaptability to our Southern soil and climate.

THE NEW CENTURY ISSUE OF WOOD'S DESCRIPTIVE CATALOGUE is fully abreast of the times, and gives the fullest information about all

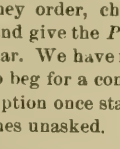
Seeds For Southern Planting.

It should be in the hands of all who plant seeds, and we will mail it free upon receipt of postal request.

T. W. WOOD & SONS, Seedsmen,
RICHMOND, - VIRGINIA.

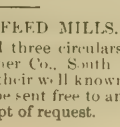


Our own grand NEW BUILDING. Oldest (32 YEARS) and only business college in Va., and 2d in the South to own its building. An UP-TO-DATE SCHOOL. Scholarly and experienced teachers, 4 of whom are authors of valuable books. Both sexes. NO VACATIONS. All business branches, English and Academic departments. "LEADING BUSINESS COLLEGE SOUTH OF THE POTOMAC RIVER." Phila. Stenographer. Catalog free.



CHICAGO CORN SHELLER **$1.**

Send us **one dollar** and we will send you a corn sheller that will shell corn as well as the more expensive machines on the market. (Mention this paper.) **Heaton & Hubbell, 63-65 Fulton St., Chicago.**



CYCLONE SEED SOWER **SAVES** GRASS GRAIN AND SEED **Clover**

Increase of crops pays for seeder first 10 acres. Tried and true, 20 years the Standard. Sent on trial. Special offer and circulars free. Address Champion Seeder Co., Urbana, Indiana.

DEAFNESS CANNOT BE CURED

by local applications, as they cannot reach the diseased portion of the ear. There is only one way to cure Deafness, and that is by constitutional remedies. Deafness is caused by an inflamed condition of the mucous lining of the Eustachian Tube. When this tube gets inflamed you have a rumbling sound or imperfect hearing, and when it is entirely closed Deafness is the result, and unless the inflammation can be taken out and this tube restored to its normal condition, hearing will be destroyed forever: nine cases out of ten are caused by catarrh, which is nothing but an inflamed condition of the mucous surfaces.

We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free.

F. J. CHENEY & CO., Toledo, O.

☞Sold by Druggists, 75c.

To Our Subscribers.

When sending your renewal, get one of your neighbors to join with you and give you 50 cents, that he may also have *The Planter*. A dollar bill is more convenient to remit than any other form of remittance. Every subscriber could secure another subscriber for us if he tried. This would double our list, and be most cheering to us.

Hard on Us.

Jno. S. Funk, Glen Farm, Singer's Glen, Va., writes us: "I would advertise in *The Southern Planter* this season but have had such a demand for sheep that I have sold out. I find your journal the best medium in which to advertise. Several parties wrote me this season answering my advertisement which appeared in *The Southern Planter* last season."

Whose Money?

We received on October 10th a remitance in stamps, renewing a subscription to the *Southern Planter*. The envelope was postmarked "Brightwood, Va.," but the sender omitted to sign his name.

We also received 50 cents in stamps on December 22, postmarked "Culpeper, Va.," without signature. We are unable to credit the owner unless claimed.

STOCK WANTED.

We have had inquiries recently for Essex Pigs. Cotswold Sheep and Red Polled Cattle. Parties having any of the above breeds of stock will certainly do well to advertise same in the *Southern Planter*.

MAGAZINES.

The January number of the *Century*, appearing just before New Year's, has a Happy New Year cover designed by Will Bradley and printed in colors. Among the contributors are the Right Hon. John Morley, Dr. S. Weir Mitchell, Rudyard Kipling, Gov. Theodore Roosevelt, Booker T. Washington, Ernest Seton Thompson, Stephen Phillips and Captain Joshua Slocum, and the artists represented are Mr. Thompson, who illustrates his own contribution; Frederic Remington, Joseph Pennell, Edmund Sullivan, Varian, Potthast and Mary Hallock Foote, to say nothing of the reproduction of paintings by Sir Thomas Lawrence, Van Dyck and Cooper. The magazine is rich in full-page pictures, many of them in tints. Gov. Roosevelt's essay on "Fellow-Feeling as a Political Factor" is a characteristically vigorous and optimistic plea for the avoidance of horizontal social cleavages in American politics, and the cultivation of vertical cleavages instead. If the republic is to endure, he argues, we must divide on political questions, not by classes, but as individuals. The great work that is being done at Tuskegee Institute for the elevation of the negro race is set forth very convincingly by President Washington, who is laboring no less effectively for the good of the whites than for that of the colored population of the South.

"The Little Boy and the Elephant," the opening story in *St. Nicholas* for January, is the tale of a little Indian Prince who is carried off into the jungle by an amiable wild elephant, that takes very good care of him and finally restores him to his friends. Jules Guerin has made several illustrations of little Noora's peculiar experiences, and one of them forms the frontispiece of the number. The lads of Shakspere's day are described in "Elizabethan Boys," by L. H. Sturdevant, and pictured by George Varian. Reginald Birch illustrates Jane Dransfield's verses about "The Family Clock," and also makes the pictures for the verses and game by M. K. Jessop, "Lady Blunderpin's Family Coach." In "The Vanished Colony," Elbridge S. Brooks tells of Jamestown, Virginia—the earliest English settlement in America, with a history running back nearly three centuries.

The Breeders' Gazette Christmas number is one of the finest ever issued by the proprietors of this standard authority on live stock, and this is saying much, as former issues were hard to beat. The illustrations alone are worth much more than the cost of the whole number. They are really fine works of art, and yet true to nature.

"No Eye Like the Master's Eye."

You are master of your health, and if you do not attend to duty, the blame is easily located. If your blood is out of order, Hood's Sarsaparilla will purify it.

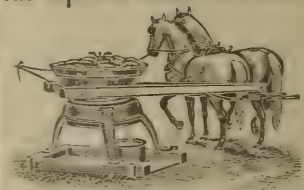
It is the specific remedy for troubles of the blood, kidneys, bowels or liver.

Blotches—*"My face used to be covered with pimples and blotches and I suffered from continuous headache. Hood's Sarsaparilla quickly removed the cause and my face is smooth. Have no more headaches." F. H. Seibert, Hammond, Ind.*

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

The Improved BOSS FEED MILL.

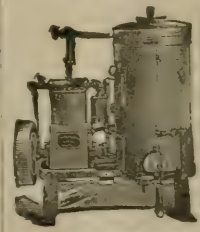


Needs no praise—speaks for itself. Will grind all kinds of grain, fine or coarse, wet or dry, with more speed and less power than any other mill manufactured. Sales doubled every year for the last eight years. Catalogue free. Prices reasonable. Every mill guaranteed.

WOODCOCK FOUNDRY & MACHINE WORKS,
CHILLICOTHE, OHIO.

After Being on the Market TEN YEARS,

The ACME Engine Still Leads



For Churning, Cutting & Grinding Feed, Filling Silos, Sawing Wood, Elevating Water, and all Farm and General Uses where

Small Power is Required.

Fuel, Kerosene Oil.

No Skilled Engineer required.

ROCHESTER MACHINE TOOL WORKS.
No. 17 Frank St., Rochester, N. Y.



FOR 14 CENTS

We wish to gain this year 30,000 new customers, and hence offer 1 Pkg. City Garden Rad., 10c
1 Pkg Earliest Emerald Cucumber, 5c
1 " La Crosse Market Lettuce, 15c
1 " Strawberry Melon, 15c
1 " 11 Day Radish, 10c
1 " Early Ripe Cabbage, 10c
1 " Early Dinner Onion, 10c
3 " Brilliant Flower Seeds, 15c
Worth $1.00, for 14 cents. $1.00

Above 10 Pkgs. worth $1.00, we will mail you free, together with our great Catalog, telling all about SALZER'S MILLION DOLLAR POTATO upon receipt of this notice & 14c stamps. We invite your trade, and know when you once try Salzer's seeds you will never do without. $2000 Prizes on Salzer's 1900—rarest earliest Tomato Giant on earth. F 191

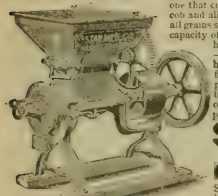
JOHN A. SALZER SEED CO., LA CROSSE, WIS.

VIRGINIA
TOBACCO SEED

is noted the world over. Seed grown here produces the finest types of Tobacco grown. Our Catalogue gives full descriptions, kinds best adapted to different soils, and much other valuable information for Tobacco growers everywhere. Catalogue mailed on request. Write for it.

T. W. WOOD & SONS,
SEEDSMEN, - RICHMOND, VA.

A FAST GRINDER



one that cuts and crushes corn, cob and all, and grinds it and all grains singly or mixed, with capacity of one ton of feed per hour with 8 to 10 h. p. —Smaller size 5 to 6 h. p. Grinds coarse or fine at will. Uses the perfect cone shaped burrs. Requires speed of only 250 revolutions per minute.

STAR STEAM POWER GRINDER

Safety bottom—no hard substance can get into burrs. Strong, well made and durable. Never chokes. Light draft for the capacity. Send for circulars, etc., of sweep and power mills.

STAR MAN'F'G. CO., 30 Depot St., NEW LEXINGTON, O.

BOWSHER Feed Mills.



(Sold with or without Elevator.)

Will crush ear corn with or without shucks, and grind any kind of small grain at the same time; mixing in any proportion. Have duplex shaped grinders. Different from all others.

Lightest Running and Handiest to Operate. 7 SIZES 2 to 25 horse power. One style for cotton seed.

(Also make Sweep Feed Grinders.)

R. N. P. BOWSHER CO.,
South Bend, Ind.

Farm Fence 18 TO 24C. PER ROD.
Buchanan Fence Co., Box 25, Smithville, O.

Among the thirteen strong articles in the January *Forum* are found the following: "The Tariff a Live Issue," by Congressman Albert J. Hopkins; "German Art of To-day," by Ferd. Avenarius; "New Crimes and Penalties," by Hon. Samuel J. Barrows, United States Commissioner of the International Prison Commission; "A Living Profit and a Living Wage," by Edward J. Smith; "Some Defects of the Kindergarten in America," by G. Stanley Hall, President of Clark University: "Does Colonization Pay?" by O. P. Austin, Chief of the U. S. Bureau of Statistics, and "Wagner's Personality," by Gustav Kobbé.

The future of Cuba and Porto Rico, the Philippine question, financial legislation in the new Congress, Secretary Root's report, the British reverses in South Africa, and the recent progress of American municipalities are some of the topics editorially treated in the January *Review of Reviews*.

The subject of the *Review of Reviews'* character sketch for January is Secretary John Hay, who, by reason of the death of Vice-President Hobart, becomes the successor apparent to the Presidency. The writer of the sketch is Mr. Henry Macfarland, the well known Washington correspondent, who makes it clear that few men in public life to-day have had so good a training for the Presidency as Mr. Hay has received in the thirty-nine years that have passed since he became Lincoln's private secretary.

The *New Lippincott* for January, 1900, begins the year with a complete novel, full of fresh sensations and amusing episodes, called "The Bread Line," by Albert Bigelow Paine. This is a tale of fun and love in New York's Bohemia, beginning with New Year's night at the Model Bakery on Broadway, where some comrades encounter "The Bread Line," and ending there, after a year spent in trying to start a newspaper in a Bohemian studio. Love plays a signal part in redeeming the hero.

The significant series of stories on Mormon Life, by Mrs. J. K. Hudson, begins in this number with "The Third Wife." These should prove as useful a weapon against the renewed menace of polygamy as the expected Congressional action.

The short fiction will consist of three extraordinary stories by comparatively new writers: "Behind the Lines," a tale of social life in Washington, by Archibald Willingham Butt; "The Story of a Sky-Scraper, by Per ie W. Hart, a tale of to-day in taller New York; and a charming fairy tale for Christmas, by Evelyn Sharp, a new London writer, entitled "In the Prince's Shoes."

Thirty-two authors, ten illustrators and eight photographic artists contribute to the excellent January issue of *The Ladies' Home Journal*. Among the special features are "The Home Coming of the Nakannies," by W. A. Fraser; "The Boer Girl of South Africa, by Howard C. Hillegas; "Where the New Century will Really Begin," by John Ritchie, Jr.; "A Merry Woman's Letters to a Quiet Poet,"

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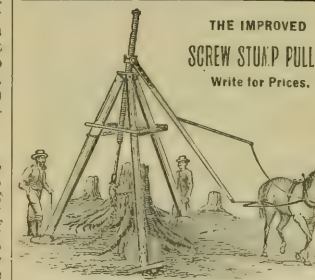


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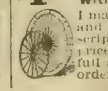
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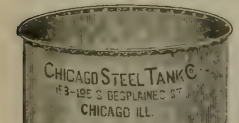


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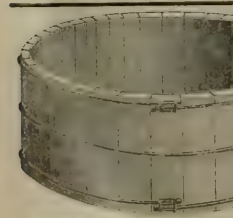
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In the next place, the topics discussed are to be given a broader range, thus enlarging the scope of the magazine as a vehicle of useful and entertaining knowledge, and extending its appeal to a wider circle of readers. In a word, the philosophy of science, which has heretofore been a prominent feature of the magazine, is to give place to the facts and principles that apply directly to the concerns of every-day life.

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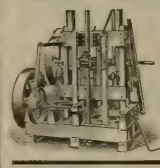
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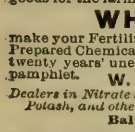
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These and some minor changes of form are introduced in the present number. To mention but a few of the articles, Sir Robert Ball, President of the Royal Astronomical Society, writes of the Advance of Astronomy in the Nineteenth Century; Prof. Charles E. Munroe treats of the Application of Explosives, which in a variety of forms are now doing their deadly work in war; A Paradoxical Anarchist is described and studied by Cesare Lombroso, the eminent Italian criminologist; What Makes the Trolley Car Go is explained and illustrated by Mr. William E. Baxter, C. E.; and there is also a timely article on the Destructive Effects of Vagrant Electricity, by Hubert S Wynkoop, electrician to the Department of Municipal Lighting in Brooklyn. President Jordan, of Stanford University, Miss Mary M. Patrick, President of the Woman's College in Constantinople, and Herbert Spencer also have articles in the number.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Report of the Secretary of Agriculture. This is an excellent report, and should be read by all farmers. It deals with the work of the Department in a broad and comprehensive spirit, and shows its possibilities for good on behalf of the American farmer. Mr. Secretary Wilson has shown himself a power for good since he joined the cabinet, as he is in close touch with the farmers, being one of themselves. His hands should be upheld by all farmers.

Division of Botany. Bulletin 22. The Present Status of Rice Culture in the United States.

Division of Vegetable Physiology and Pathology. Bulletin 17. Wilt Disease of Cotton, Watermelon and Cow-Pea.

Office of Experiment Stations. Circular 42. A German Common School with a Garden.

Alabama Experiment Station, Auburn, Ala. Bulletin 106. Orchard Notes.

Cornell Experiment Station, Ithaca, N Y. Bulletin 173. The Relation of Food to Milk Fat.

Bulletin 174. The Problem of Impoverished Land, being Sugge-tions for Inve-tigation and Experiment.

Bulletin 175. Fourth Report on Japanese Plums.

Kansas State Board of Agriculture, Topeka, Kan. Report of the Board for quarter ending December, 1899. Part I. The Horse Useful. Part II Population, Crop and Live Stock Statistics of 1899.

Maryland Experiment Station, College Park, Md. Twelfth Annual Report.

Michigan Experiment Station, Agricultural College, Mich. Bulletin 175. Some Insects of the year 1898.

Bulletin 176. Strawberry Notes for 1899

Missouri Experiment Station, Columbia, Mo. Bulletin 48. Texas Fever.

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Missouri College of Agriculture, Columbia, Mo. Programme of Short Winter Courses in Agriculture and Horticulture, January 2 to March 23, 1900.

New Hampshire Experiment Station, Durham, N. H. Bulletin 66. Experiments in Pig Feeding.

North Carolina Experiment Station, Raleigh, N. C. Report of the Director for year ending June, 1899.

Bulletin 167. Poultry Experiments, 1898-'99.

Bulletin 168. Experiments with Field and Forage Crops.

Bulletin 169. Feeding Experiments and Milk Records.

Rhode Island Experiment Station, Kingston, R. I. Twelfth Annual Report.

Bulletin 59. Analysis of Commercial Fertilizers.

Virginia Experiment Station, Blacksburg, Va. Bulletin 93. Tests of Fertilizers on Wheat.

Bulletin 94. The Experimental Vineyard. Second Report.

Virginia Weather Bureau, Richmond, Va. Report for November, 1899.

CATALOGUES.

Fillston Farm, Glencoe, Md., Asa B. Gardner, Jr., manager. This is a very pretty catalogue, finely illustrated.

Geo. H. Stahl, Quincy, Ill. The Excelsior Incubator. The Wooden Hen.

Dowden Mnf'g Co., Prairie City, Iowa. The Dowden Potato Harvester

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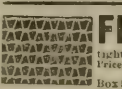
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W. H. McCARTHY, - - Secretary.

PAINT TALKS, XXIII.

WHY "PATENT PAINTS" ARE IN DISREPUTE.

It has been shown in these papers that when the ingredients are rightly selected, ready mixed paints should be both better and cheaper than any other kind of paint. It may be remarked, in passing, that there is, generally, no such thing as "patent paint." Paints are furnished as dry pigments to be mixed in the paint shop with the necessary oil, turpentine and driers; as paste paints to be thinned down with oil; or as ready mixed paints containing all the required ingredients ready for the brush. Some paste paints are supplied already incorporated with the tinting colors, while in other cases, especially pure lead, the color must be added to the white base.

Now, if any one will take a little white paste paint (lead, for example), and add to it a small quantity of color, incorporating it thoroughly, he will find that he can apparently obtain a uniform tint; but if he will now take a small portion of this tint and grind it vigorously under a muller, he will see that the tint deepens and brightens as the grinding proceeds. This illustrates the fact that paints cannot be thoroughly mixed without mechanical means

The beauty of the so-called "patent paints" depends on this fact; for however good or however bad they may prove to be, the ready mixed paints are beautiful.

Now, when the painter takes his white base and mixes with it the color, oil, turpentine, drier, etc., necessary to fit it for application, he does at the expense of man-labor exactly what is done by machinery in the paint factory. He makes a ready mixed paint; but as the process is purely mechanical he cannot do it either so well or so cheaply as it could be done by a machine; more color will be required to produce the same tint; and the paint will not be so homogeneous, and therefore not so good.

What, then, is the matter with "patent paints?" With some of them, nothing. Every one has seen ready mixed paints that answered every demand. Of the rest, generally speaking, it can be safely said that they have just one defect, and that is *water*. Water is not a good painting medium, but by the use of alkaline emulsifiers it can be made to mix with oil, and a cost of nothing per gallon, to replace linseed oil at forty or fifty cents a gallon, such paint looks all right, but it does not wear.

The test for water in paint is to soak a strip of gelatine in it over night. If the gelatine swells the paint contains water; if not, there is no water present.

Good ready mixed paints all contain a large proportion of zinc white, and the valuable properties of zinc white in paints have frequently been pointed out. If it were not for water "patent paints" would never haver fallen into disrepute. Good ready mixed paints can be obtained by buying only such as bear the name of a well-known manufacturer, and making sure that they contain no water.

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DESSERTS MADE OF COCOANUT.

Candy is, by no means, the only delicacy that we can make out of cocoanut. It enters into quite a long list of delicious desserts, the receipts for which I subjoin.

COCOANUT CAKE.

Make the batter as follows: 4 cups of flour, 3 cups of white sugar, 1 cup of butter, 1 cup of sweet milk, in which dissolve a teaspoonful of soda and two of cream of tartar. Six eggs, whites and yolks beaten separately. Cream the butter and sugar together, and mix the beaten eggs with them. Next stir in flour, and then sweet milk. Flavor with a teaspoonful of vanilla. Bake in layers in shallow cake-pans. The layers have to be put together with icing and grated cocoanut. For unboiled icing use the whites of four eggs, beaten very stiff. Allow nine teaspoonfuls of pulverized sugar to each egg, and flavor with a teaspoonful of vanilla. When the layers of cake are cool, spread the icing over them and sprinkle thickly with grated cocoanut. Two large cocoanuts are required, as the sides of the cake ought to be iced and sprinkled with cocoanut as well as the top and between the layers. Pile the cocoanut on top. This makes a remarkably showy and pretty cake. If you omit the icing, the cocoanut is too light and fluffy to adhere to the cake.

COCOANUT ICE CREAM.

Make a custard of one gallon of fresh sweet milk, four cups of white sugar and four eggs. Put the milk on to boil in a porcelain kettle. Beat up the yellows very smooth with two cups of sugar. When the milk gets hot, dip out cupful by cupful, and pour on to the yellows, beating well, till half the milk is taken out. Then pour back what you have taken out, and stir it all well, so as to keep it from burning at the bottom. Beat the whites very stiff, add to them the remaining two cups of sugar, and whip into the hot milk just as you take it off the stove. When it gets cold, stir into it three small or two large cocoanuts, grated fine, and as it is very tedious to grate them, you had better do this before you start on the custard. Freeze the custard after adding the cocoanut, and you will find it a delicious dessert.

COCOANUT PUDDING.

One pound of sugar, either white or brown; a quarter of a pound of butter; a half pint of cream; seven eggs.

Cream the butter and sugar together. Beat the eggs well, whites and yellows separately, mix them, and stir into the butter, and sugar. Add the cream, and lastly one grated cocoanut. Bake in a mould or pudding dish and allow an hour for the cooking of it, with a steady heat.

COCOANUT PIES.

Make a nice rich pastry, line some pie plates with it, and let it cook a few minutes before filling them with this mixture. Cream a pound of sugar and six ounces of butter together. Add the well beaten whites of six eggs and a glass of some light colored wine. Whip in one grated cocoanut and pour into the pie plates. This will make three large pies.

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Hominy Grits	2
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Two quarts of sweet milk, two cups of white sugar, two eggs, two heaping table spoonfuls of corn starch, dissolved in cold milk, a lump of butter, and a large grated cocoanut.

Put the milk and sugar on to boil. When it does so, stir in the corn starch, then the eggs, whites and yellows beaten separately. When it gets very thick, take it off the stove, stir in the lump of butter and lastly the grated cocoanut; and then pour it into your blanc mange shapes. If you do not find it convenient to add the eggs and butter, a simpler plan is to make the blanc mange by the directions printed on the box of corn starch, merely adding the grated cocoanut as you take it off the stove.

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The annual meeting of the American Guernsey Cattle Club was held at the Fifth Avenue Hotel in New York City on December 13th. It was one of the most interesting and well attended of any meeting ever held. Several very important matters were discussed and acted upon.

The officers for the ensuing year were elected as follows: President, James M. Codman, Brookline, Mass.; Vice-Presidents, A. J. Cassatt, Philadelphia, Pa., Sidney Fisher, Minister of Agriculture, Canada; Member Executive Committee for four years, Francis Shaw, Boston, Mass.; Secretary and Treasurer William H. Caldwell, Peterboro, N. H.; Committee on New Members, Francis Shaw, Boston, Mass., N. K. Fairbank, Chicago, Ill., E. T. Gill, Haddonfield, N. J.

BETTER THAN EVER.

The Christmas number of the *Horse Review*, of Chicago, Ill., appeared December 12th. A large variety of articles of unusual value to horsemen, sketches, reminiscences, stories, poems, etc., the comprehensive statistics (nowhere else obtainable), the magnificent supplement (suitable for framing), and innumerable smaller illustrations, and the artistic lithographed cover (in seven colors), all combine to make this tenth Christmas number the peer of anything ever attempted in this line. The price is but 25 cents per copy, but is sent without cost to all names on the *Review* subscription list December 12th, or subscriptions for one year at $2, or six months at $1, may commence with that issue. Full particulars will be cheerfully furnished by the *Horse Review Co.*, 910 Masonic Temple, Chicago, Ill.

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6,000 3-lb. cans Bartlett Pears in White Syrup, each	10c.
1,000 dozen Small French Green Peas	15c.
French Candy, pure Sugar goods, made in Paris	80.
10,000 Fresh Cocoanuts	5c.
Granulated Sugar, 6 lbs. for	27c.
Irish Potatoes, peck	20c.
Water Ground Meal, per bus	50c.
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Eggs ready for shipment. G. W. GRAVES & BRO

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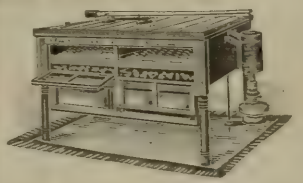
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10	3	Black Spanish,
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15	1	B. B. R. Ex. Games,
8	1	B. B. R. Game Bantams,
6	1	Pit Games,
9	2	Indian Games,
5	1	White Sherwoods,
4	0	Black Langshans,
9	5	White Wyandottes,
18	1	S. L. Wyandottes,

Hens or Pullets.	Cocks or Cockerels.	
10	4	Silver Sp'gled Hamburgs,
10	8	White Plymouth Rocks,
7	4	Blue Andalusians,
23	4	Brown Leghorns,
9	1	Buff Leghorns,
25	4	White Leghorns,
24	10	Black Minorcas,
8	2	White Minorcas,
1	1	R. C. B. Minorcas.

These are my choicest specimens and the result of years of careful mating and breeding. None better can be had any where at any price. They must all be closed out at once, and in order to do so quickly, will sell the Cockerels @ 75c. each, and Pullets and Hens @ $1.00. Among them are many show specimens, worth from $5 00 to $10 00 each. White Guineas, 75c. each; Young Belgian Hares, 50c. each; Finest pack of Beagle Hounds in the South, Broken Dogs, $10.00; Pups, $5.00, either sex; get a pair and have some fun on rabbits.

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Sire 33 tested daughters. 9 of these have tests of 20 lbs. and over in 7 days. One Oonan of Riverside has an official test 31 lbs., 3 oz. in 7 days; test 14 days, 68 lbs., 6 oz. She is the largest tested cow ever bred in Tennessee.

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Record, 45 tested cows in herd, out of 52 in milk, August, 1898.

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MAJOR LEE, No. 45,945, out of Beautiful Princess, No. 21,519 (a three lb. butter cow) gr. dam of Stoke Pogis III; and by Prince Calhoun, No. 48,201 (by Prince of Melrose, by Stoke Pogis III). Dropped June 6th, 1895. Solid color, black tongue and switch; bred by Louisiana Experimental Station. A vigorous animal with a dozen or more fine daughters on the place. Dehorned when young; gentle. Sold only to avoid breeding to descendants. Will be sold cheap to the first fair bidder.

Address WM. C. STUBBS,
Sassafras P. O., Gloucester Co., Va.

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There are cheap and beautiful homes in the "Sunny South," near the sea, and near that thriving seaport city, Norfolk, Va., for thousands of people who want happy homes in a mild, healthful, and delightful climate, a kind and productive soil, the very best markets in the world, the very lowest freight rates, good social, educational, and religious privileges, and the greatest number of other both natural and acquired advantages, to be found in any other one section of the Union.

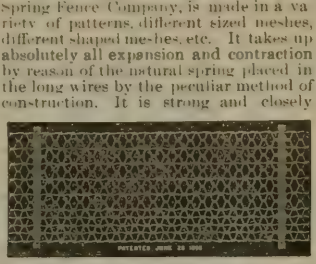
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A GOOD FENCE.

The Coiled Spring Fence, regularly advertised in this paper and manufactured at Winchester, Indiana, by the Coiled Spring Fence Company, is made in a variety of patterns, different sized meshes, different shaped meshes, etc. It takes up absolutely all expansion and contraction by reason of the natural spring placed in the long wires by the peculiar method of construction. It is strong and closely



woven, and might be termed the great general-purpose fence, for it is close enough for the smallest pig or lamb, and strong enough for the strongest bull, and high enough for the "breechy" horse. The material used is the very best of galvanized steel wire of the sizes demonstrated to be the best for the purpose. The manufacturers of this fence have no agents, and have adopted the plan of selling direct to the farmer at first cost. The quality of the fence and this method of doing business offer advantages that every farmer would do well to inquire into before making his purchase of fence.

Write these people direct for terms, prices, etc. Please mention this paper in doing so.

HIGHLANDS STOCK FARM FOR SALE.

Mr. E. B. Wilson, Fancy Hill, Va., owner and proprietor of the above farm, offers it for sale in his advertisement in another column. This is one of the best general purpose farms of its size in the Valley of Virginia. It has about 225 acres of cleared land, and 75 acres in splendid oak and hickory timber. Mr. Wilson has conducted it as a successful stock farm for a number of years, but owing to other business arrangements now offers it for sale. Send for a full description or go and look at it, if interested.

ARROWHEAD STOCK FARM.

On the outside back cover page of this issue will be found the advertisement of this farm located at Charlottesville, Va. Hon. Sam'l. B. Woods, the proprietor, offers to our readers thoroughbred stock, the equal of which will be hard to find. His stock consists of Poland China hogs, Shropshire sheep, Red Polled cattle, Shetland ponies, riding and driving horses; also thoroughbred poultry and bronze turkeys. Mr Woods breeds only the best strains of each kind, and sells at farmer's prices.

OLD DOMINION POULTRY PLANT, NEGRO ARM, VA.

Our readers will find an advertisement of this firm in another column. J. H. Sledd, Esq. proprietor, is an experienced poultryman, has splendid stock, and unsurpassed facilities for handling any orders which may be entrusted to him.

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..Fine Road and Trotting..

HORSES..

FOR SALE BY

W. J. CARTER (Broad Rock),

Turf Correspondent,

P. O. Box 929 RICHMOND, VA.

REFERENCES.—L. BANKS HOLT (former owner of John R. Gentry, 2.00¾), Graham, N. C.; COL. J. S. CARR, Durham, N. C.; MAJ. P. P. JOHNSON (President National Trotting Association), Lexington, Ky.; COL. B. CAMERON, Fairntosh Stud, Stagville, N. C.; JOS. BRYAN and H. C. CHAMBLIN, Richmond, Va.; A. B. GWATHMEY (N. Y. Cotton Exchange), New York; CAPT. B. P. WILLIAMSON, Raleigh, N. C.; J. F. JACKSON Editor *Southern Planter*) Richmond, Va.; H. A. BUCK (Editor *Spirit of the Times*), New York.

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SOUTHERN PLANTER, -	50
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FOOD FOR PLANTS, - -	10
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All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

HOW TO CLEAN KITCHEN VESSELS

BY M. W. EARLY, LYNCHBURG.

Besides the usual daily cleansing of kitchen vessels, it is a good plan to give them a more thorough and effectual cleansing about once a month by dropping them into a large iron boiler in which you have put a teacup of washing soda, or, better still, about a fourth of a box of lye, as there is a penetrating power in hot boiling lye that no other cleansing agency possesses. Let the vessels remain in this boiler an hour or two, then take them out, lay them in a dish-pan, scrape them with a knife, and lastly, scrub them thoroughly with a dish rag. Even if you are a neat, careful housekeeper, you will be astonished at the amount of dirt that comes off in the process described above. A little deposit of black *will* gather in the corners of the bread pans, no matter how carefully you may wash them in the dish pan, and even scrape them, but boiling them in hot water and lye will thoroughly cleanse them. This makes the black deposit so soft that it will come off easily at the application of a knife and dish rag, and the vessel will look almost as clean and nice as when it first came out of the tinner's shop. Drop in your tin-pot tops, your muffin shapes, and all your kitchen vessels, both tin and iron, that are not too large, and they will all come forth nicely cleansed, or in a condition to be so by the further application of a dish rag to remove the soft, crumbly black on their surface.

When you have finished boiling your kitchen vessels, the water with lye dissolved in it, will be extremely useful for scouring greasy tables or floors, only you must take care not to let your hands come in immediate contact with it, as it is very stinging, and inflicts great suffering if it touches a cut or sore on the hand. Persons should be very careful, therefore, to apply it with a scouring brush to the kitchen table, shelves, or floor. Nothing cleans discolored marble slabs so nicely as a little lye dissolved in boiling water. It removes all those stains which are so apt to come on the slab of a sideboard, bureau, or washstand.

No housekeeper should be without a bottle of household ammonia. A few drops of it in a pint of warm water cleanses hair brushes beautifully, and will also brighten silver or window-panes. But a cheaper way to brighten window-panes is to put about a tablespoonful of kerosine oil in a small tin basin of warm water and apply it to the glass. It is quite unnecessary to use gallons of water, and make a great sluice of window-washing, as some housekeepers do. A quart will answer, or even a pint, for a window.

A cheap, but excellent way to clean knives is to use equal parts of sifted ashes and sand, rubbed on with an Irish potato. There is no use in buying expensive preparations for this purpose, when the simple home-made one mentioned above will answer so well. It gives knives a fine polish to rub them once in a while with a piece of sand paper, and nothing cleans and brightens their handles so

NEW 20TH CENTURY CREAM SEPARATORS

SEPTEMBER FIRST marked another great advance in centrifugal cream separation with the introduction of the Improved 20TH CENTURY "Baby" or "Dairy" sizes of De Laval Cream Separators, possessing increased capacities and still greater efficiency.

NEW STYLES, CAPACITIES AND PRICES.

Old Style "Hollow-Bowl" Baby No. 1,	150 lbs.,	$50.00
Old Style "Strap" Humming-Bird,	175 lbs.,	50.00
Improved "Crank" Humming-Bird,	225 lbs.,	65.00
Improved Iron-Stool Baby No. 1,	325 lbs.,	100.00
Improved Iron-Stool Baby No. 2,	450 lbs.,	125.00
Improved High-Frame Baby No. 2,	450 lbs.,	125.00
Improved High-Frame Baby No. 3,	850 lbs.,	200.00
Improved Dairy Steam-Turbine,	850 lbs.,	225.00

Send for "New Century" catalogue.

THE DE LAVAL SEPARATOR CO.

Western Offices: RANDOLPH & CANAL STS. CHICAGO. | GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK. | Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

BILTMORE FARMS,

BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

APPLY TO GEO. F. WESTON, SUPT.

nicely as this, thoroughly removing the yellow stains which come on them from time or from careless usage. Indeed, sand paper is so useful for polishing various articles that it is desirable always to keep a few sheets of it on hand.

Every housekeeper who has occasion to use dairy utensils ought to keep a supply of washing soda, as it is not only very cleansing, but serves to correct any acidity which the vessels (especially the churn) may contract from the milk

For washing blankets, household ammonia is the greatest help. Cut the pair in two, as this will enable you to wash them far more thoroughly and more easily. Fill a large tub (or bath tank) with warm water, pour a bottle of household ammonia in it, and let the blankets soak in it several hours Then wash them in another water with wool soap or ivory soap; lastly, rinse them in pure water. The ammonia exerts such a cleansing power that the rest of the process will not be very troublesome.

JUST SO.

O, *Planter*, stand and catch your dollar,
To buy a Christmas pie;
And though carnal thoughts may follow,
Just raise them to the sky.

A constant pruning needs the mind,
To rid it of its foibles;
And keep it climbing like the vine
So literature ennobles.

Nature is to one a friend,
To another she's a demon;
But if we her page could spell,
We'd find it full of reason.

She teaches man to scratch the soil,
And root away the thicket;
Thus provides through healthy toil
For survival of the fittest.

W. M.

NOT MARRIED TO HER.

We never knew whether the story was original or not, but it pleased the old gentleman so much if we asked him to tell it to us, that we sometimes managed to get it out of him two or three times in the same week. This is the story:

A butler, who had been twenty-five years in the same family, went one morning to his master and said that he wanted to leave. The master, much astonished, asked what his reason was. "Do you want your wages raised, John?" "No, sir." "Is it the food you are complaining of?" "No, sir." "Well, what is it, then?" "I'd rather not say, sir." Now, John," said his master, losing his patience, "you've been a long time in my employ, and I insist upon your telling me. "Well, sir," said the butler finally, "if you must know, it's all along of the missus. It's nag, nag, nag from morning to night, and I can't stand it any longer." His master sighed, and then said solemnly—"John, go upstairs to your bed-room, lock the door, and then go down upon your bended knees and thank heaven that you're not married to her."

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

One-Half Saved.

Gold Dust cleans everything about the house better, with half the effort, in half the time and at half the cost of soap or any other cleanser.

Send for free booklet—"Golden Rules for Housework."

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Highlands Stock and Poultry Farm ....

at a very low price and on good terms.

50 head of the beat Pure-Bred **SHROPSHIRES** in Virginia.

A few top **CHESTER** and **POLAND-CHINA HOGS** and **PIGS**, very low.

100 head of extra-fine **BARRED PLYMOUTH ROCK FOWLS.**

If you want a splendid home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

GASTON STOCK FARM.

Holstein-Friesian and Jerse Cattle.

Having selected my foundation stock from the best, I can offer animals of each breed of highest breeding and individual merit, at moderate prices, containing the blood of the best families, and bred with great care.

I am prepared to sell HOLSTEIN BULLS, and BULL CALVES and JERSEYS of either sex.

JNO. U. DETRICK, Somerset, Va.

.. BACON HALL FARM ..

HEREFORD CATTLE—Winners at ten fairs 1899.
DORSET SHEEP—Bred ewes and fall lambs.
BERKSHIRES—Only pigs at present.
MUSCOVY DUCKS.

SATISFACTION ALWAYS OR NO SALE.

E. M. CILLET, Verona, Baltimore Co., Md.



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REGISTERED HEREFORD CATTLE.

Chief Stock Sire, Imp. SALISBURY, 76059,

Whose fine calves now in Kansas and Virginia endorse the value of his purchase for a prepotent sire of great breed character.

The cows of the CASTALIA HERD were selected from some of the best known herds in America.

The outlook for HEREFORDS was never so good as now, both for pure-breds for breeding purposes, and grade Hereford steers for market.

Pure-bred Hereford bulls crossed on native grade cows produce the ideal market stock, thrifty, hardy, and laying on the beef in the right places for the choice cuts.

A good calf eats no more than a "scrub," and brings 100% more money to its owner.

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Pamphlets giving particulars mailed on application. Visitors met at station.

Address,

MURRAY BOOCOCK, Owner,

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On account of my large correspondence, inquirers are requested not to use postal cards.



ONE OF THE BREEDING COWS IN THE CASTALIA HERD.

MOTTOES FOR THE FARM.

Keep the soil at work in the summer growing crops; in winter, growing fertilizing plants.

Make your own manure by consuming most of your own products as food for stock.

One dollar expended in a thorough working of the soil is better than two dollars expended for commercial fertilizers.

Produce all you consume, or be sure of something to give in exchange.

All young and growing animals are better for much exercise. All animals fatten faster if kept still.

The more comfortable the stable, the less food required. House all animals warmly at night.

The secret of sleek animals is a variety of feed. A horse should have a change as often as practicable, with some carrots interspersed. Not always corn; not always oats, and not always bran. Whole grains are better than ground feed. The reverse is true of the cow and the pig. The poultry may pick from all the other dishes. Too little importance is given to root crops for stock. Potatoes and carrots, parsnips, beets, turnips, artichokes, etc., correct and give a relish and fine condition.

A cheap whitewash paint for outdoors is made by using just enough water to moisten the slaked lime, and then adding kerosene oil to thin it to a consistency for easy application.

Wood ashes are a good prevention for maggots in English turnips or ruta bagas, also a benefit to potatoes, and where applied are less likely to be scabby.

A dozen sheep can be kept through the winter upon what is left by the rest of a well-stocked farm—costing nothing but a few cut turnips and water and salt within reach.

Make the young hogs earn their living. Fence them into any rough piece of land and scatter corn over the worst places and let them root. Fenced upon a briar lot and given water, they will clear it very thoroughly, and the meat will be better and firmer.

TO CLEAN LACE.

When lace is soiled, even the very finest, such as honiton and point, you can clean it by being careful in this way: sew the lace upon strips of muslin and roll it tight around a smooth glass bottle and fasten securely. Make a suds by adding a teaspoonful of Gold Dust Washing Powder, and put the bottle in this to soak for several hours. If the water looks soiled, make fresh suds and repeat this process, putting the lace frequently between the fingers and rinse in several waters; then dry the lace on the bottle with a soft towel.

WHAT IS SPELTZ?

Salzer's catalogue tells all about this wonder, also Million Dollar Potato. If you farm you need it. Largest Vegetable Seed Growers in America. Send this notice and 10c. in stamps for 10 Rare Farm Samples and Catalogue to John A. Salzer Seed Co., La Crosse, Wis. [F]

THE FILSTON FARM



MEADOWS STABLES.

Has one of the largest breeding herds of JERSEYS of any enterprise in the United States.

The cattle are carefully stabled, well cared for, and bred on the most practical and useful lines. Young bulls from this herd have been sold throughout the Southern States, and have given the greatest satisfaction. The situation of the Farm, so near Baltimore, permits it to make these shipments at the lowest rate. In addition to its herd of Jerseys, the Farm maintains a fine herd of **Berkshires,** headed by their **Imported Boar, "STORM KING."** At all times first-class Bull Calves and Berkshires are for sale at moderate prices. Address

ASA B. GARDINER, Jr, Manager, Glencoe, Baltimore Co., Md.

A little book of the farm, descriptive of the Jerseys and Berkshires, will be mailed on application.

M. B. ROWE & CO.

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JERSEY and GUERNSEY CATTLE, both young and old, male and female, always on hand and for sale.

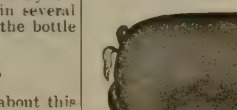
BERKSHIRE HOGS—Young sows now ready. Pigs, $10 per pair.

BRONZE TURKEYS, LIGHT BRAHMA, PLYMOUTH ROCK and BROWN LEGHORN FOWLS. PEKIN DUCKS.

GREAT DANE-MASTIFF PUPPIES, very large, fine guards, $10 each.
SHEPHERD and FOX TERRIER PUPPIES, $5 each.

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THE MUCH MOOTED QUESTION SETTLED.



N. BENJAFIELD, at Motcombe, Shaftesbury, England, and THOS. S. WHITE, of Lexington, Va., can explain this Union. N. Benjafield stands at the top for thoroughbred English Berkshires in his country, and as Thos. S. White got his start from said Benjafield, then, of course, the said White has the best blood in America. Fancy Pigs but not fancy prices, now before the puplic.

Write to **THOS. S. WHITE, Lexington, Va.**

41 Pigs now Ready for Shipment, Some Ready for Service; Boars and Sows.

HUMOROUS.

One trouble with most airships is a defective flew.—Philadelphia Record.

"Well, rain falls on the just and the unjust." "Not much; the unjust steal umbrellas."—Credit Lost.

Noah was evidently in the pickling business—at least, he filled the ark with preserved pairs.—Tit Bits.

The Father: "When I was your age, sir, I didn't have time to spend my nights running after the girls." "Well, Dad, I shall be only too glad if I can be of any service to you now."—Life.

Physician (giving advice): "Lastly, McGorry, don't go to sleep on an empty stomach." McGorry (who is ailing): "No danger av thot, Doctor; oi always slape on me back."—Harper's Bazar.

"How the trees groan!" exclaimed the romantic maid as the wind swept through the orchard. "No wonder," chimed in the practical youth, "they're full of green apples, you know."—Philadelphia Record.

Doctor: "Well, my little fellow, you have got quite well again. I was sure that the pills I left for you would cure you. How did you take them—in water or in cake?" Little Willie: "Oh, I used them in my popgun."—Cincinnati Gazette.

Lady: "What! Willy Green, you here fishing on Sunday? I shall tell your father just as soon as I see him." Willy Green: "Well, you won't have to wait long. Here he comes now. He has been back in the woods digging bait!"—Credit Lost.

"Oh, George, who opened the canary's cage?" "I did. As you told me a little bird was a-whispering to you when I was naughty, I knew it must be him, as there was no other little bird about so I opened the cage, and the cat's eaten him. That's wot he got for telling on me!"—Current Literature.

"I presume," said the relative who had removed to the city long years before, and was now revisiting the old home neighborhood, "that that worthless Jim Doolittle went to the dogs long ago?" "Waal," replied honest Uncle Ezra, dryly, "I s'pose Jim done his part, but I'm kinder of the opinion that the dogs, not appreciatin' his company, ran away before he could get to 'em"—Harper's Bazar.

"I didn't like your prayer very much this morning," said a fault-finding deacon to his minister. "What was wrong with it?" "Well, in the first place, it was too long, and then I thought it contained two or three expressions that were unwarranted." "I am sorry it meets with your disapproval, Deacon," the good man responded, "but you must bear in mind that the prayer was not addressed to you."—Ohio State Journal.

A mother, indignant to find her little son very low in his class at school, exclaimed, wrathfully, "I am out of all patience with you, Jack. I should like to know why George Jones is always head of his class, while you are always at the foot." Jack hesitated for a moment, and then, looking his mother squarely in the face, he said, innocently, 'You forget that Jones has very clever parents."

C. C. Taliaferro,
NASONS,
VA.

"MOUNT SHARON" HEREFORD CATTLE
STOCK FARM.
Registered SHROPSHIRE SHEEP.
Registered POLAND-CHINA PIGS.
Red and Grade BRONZE TURKEYS and MUSCOVY DUCKS





NOW OFFERS FOR SALE:

HEREFORD CATTLE.—Calves, entitled to registration, $50 to $75. Calves by "Sir Edward" grades, $20 to $30.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $12.50 to $20. Ewes, one year to three years' old, $10 to $12. Buck Lambs, delivered July 1 to 15, $7.50. Ewe Lambs, delivered July 1 to 15, $5.50.

POLAND-CHINA HOGS.—Pigs, six weeks' old, $5. Pigs, three months, $6.50. Pigs, five months and over, $9 to $15.

BRONZE TURKEYS.—Pairs, $6; trios, $8.50. Eggs, per sitting, $2.50.

PLYMOUTH ROCKS.—Pairs, $2.25; trios, $3; Eggs, per sitting, $1.

MUSCOVY DUCKS.—Pairs, $1.50; trios, $2.25. Eggs, per sitting, $1.50.

WILLIAM L. Jr., No. 21058, half brother of Axtell, is now in the stud, and will serve limited number of mares for $25 the season. Mares boarded at lowest figures. Colts by William L, Jr., 21058, one, two and three years' old, for sale at lowest cash prices.



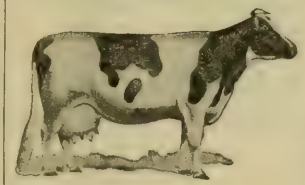
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Having purchased a part of Mr. S. S. Bradford's herd, and made several additions to my own from the leading breeders of Ohio I can furnish select pigs not related to those previously shipped and sired by my fine young boars, "ADMIRAL" 42159, and "COMMODORE." 42747. Sows in pig and young boars and sows of all ages Send to headquarters and get the best from the oldest and largest herd of Polan I-Chinas in the State at one-half Western Prices. Address,

J. B. GRAY, Fredericksburg, Va.

Thoroughbred Holstein-Friesians



(Netherlands, Pieterjes, and Clothilde) All rich, heavy milkers, and typical representatives of the breed and strains.

REGISTERED - BERKSHIRES.

"MAYOR OF BILTMORE" Heads my Herd.

Finest Stock at Reasonable Prices. Also English Beagle Dogs, Brown Leghorn and Plymouth Fowls.

WRITE ME FOR PRICES.

N. & W AND SOUTHERN RAILWAYS.

T. O. SANDY, Burkeville. Va.

SOUTHSIDE STOCK STUD,

ON ROANOKE RIVER, IN MECKLENBURG CO.

Trotting Horses, Red Polled Cattle, Dorset Horned, Shropshire and Hampshiredown Sheep, Berkshire Hogs, Pedigreed Llewellyn Setters and Scotch Collie Dogs.

All stock thoroughbred and registered. **GEO. B. FINCH, Prop., Boydton, Va.**

Strong Endorsement of Southern Planter.

We give below extracts from recent letters, which show the high esteem and value placed upon our time-honored journal.

Washington, D. C., 12-21-99.—Yes, the *Southern Planter* is giving all the satisfaction any farm paper can give.

P. LUDDY.

Brooklyn, N. Y., 12-14-99.—The *Southern Planter* is one of the most valuable farm papers I know of, and I would not think it right to have a farm without the *Southern Planter* as a regular visitor. I am translating a number of the articles into Danish to make my people understand them clearer.

JOS. C. JURGENSEN.

Charlottesville, Va., 12-18-99.—Your paper is a valuable auxiliary to all classes of agriculturists, fruit-growers, and stock-raisers. No one engaged in any of these, or their kindred pursuits, ought to be without it. It often contains a single article which is worth much more than the subscription price for a year.

(HON.) JNO. E. MASSEY,

West Chicago, Ill., 10-24-99.—I find the *Southern Planter* the most interesting practical farm paper I can read.

W. A. BOYNTON.

Salatiga, Island of Java, 9-20-99.—I must say that I am always interested in reading the *Southern Planter*, which is always up to date in every new scientific way of farming. I can scarcely understand how you can afford such good reading for 50 cents per year.

NEIL SINCLAIR.

Tottenville, N. Y., 11-6-99.—I cannot resist the prompting to say to you that while I see half the leading agricultural papers of the country, yours is the only one of which I keep a file for future reference, feeling that in time it will furnish a complete encyclopædia of agricultural affairs.

S. S. BOYCE.

Memphis, Tenn., 10-12-99.—I want to write just a line to say that I think the *Planter* seems to get better with every issue. I get many farm papers, but no one seems to throw such clear, practical light on all farmer's subjects. No farmer can go by its teachings and fail of great success.

GEO. B. MORTON.

Winston-Salem, N. C., 10-17-99.—I find it contains just the information I want and do not see how any farmer can do without it. I know of no agricultural paper that I would rather read than this, not considering prices.

JAS. F. BROWER.

Stockton, Md., 8-29-99.—I prize it too highly to be willing to lose a copy.

J. T. PARKER, M. D.

"PASTEUR" BLACK LEG VACCINE,

The original and genuine preventive vaccine remedy for blackleg. Officially endorsed in all the cattle raising States. Successfully used upon 1,500,000 head in the U. S. A. during the last 4 years. Write for official endorsements and testimonials from the largest and most prominent stockraisers of the country. "Single" treatment vaccine for ordinary stock; "Double" treatment vaccine for choice herds,

Registered **"BLACKLEGINE"** Trade Mark.

"PASTEUR" single treatment Blackleg Vaccine READY FOR USE (no set of instruments required). No. 1 (10 head), $1.50; No. 2 (20 head), $2.50; No. 3 (50 head) $6. Easily applied. No experience necessary.

PASTEUR VACCINE COMPANY,

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St. Lambert Jerseys



At the head of our herd are the two great St. Lambert bulls, viz:

ETHEL'S JOHN BULL No. 29005, whose dam, Ethel of Shelburne, granddam Crocus of St. Lambert, and her sister, the great Mary Anne of St. Lambert, have an average butter record of 22 lbs. and 7 ounces in 7 days.

ADMIRAL ST. LAMBERT No. 51338, whose dam, Flowerdale of Meridale, has a butter record of 26 lbs., 11½ oz., in 7 days, and a daily milk record of 53 lbs., 8 oz.

Several extra-fine Bulls and Heifers for sale.

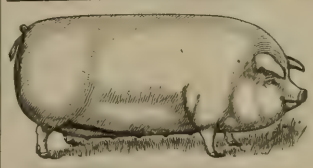
Also Indian Games, Barred P. Rock, White Leghorn and White Wyandotte fowls.

BOWMONT FARMS, SALEM, VA.

ROCK HILL HERD.

A Short Corn and a Big Pig Crop compels me to sell the **choice of 80 head** August and September pigs, all eligible to registery in O. P. C. R. Association. I guarantee stock as represented, or money refunded. Pairs and trios no kin.

B. B. BUCHANAN, BROWNSBURG, VA.



PLEASANT VIEW HERD OF.. REGISTERED

Chester White AND THE FAMOUS **O. I. C. Swine.**

Can furnish pairs and trios not related. Pedigree furnished with every pig sold. Correspondence solicited.

ARCHIE C. ROPER,

Lock Box 122, CHARLESTOWN, JEFFERSON CO., W. VA.

HENS BRED FOR LAYING

PLYMOUTH ROCK (BARRED) INCUBATOR EGGS, highly fertile, for vigorous chicks—a specialty. Instead of adding other breeds, I have for years bred this strain in addition to our noted show birds of the same breed. Interesting illustrated catalogue free. Fine references. Moderate prices. Improve your flock and make it pay.

GEO. HARRISON MORRIS, Ashland, Va.

WE SAVE YOU MONEY ON FERTILIZERS.

Buy your Fertilizers Direct at Wholesale Prices, and get your money's worth.

SPECIAL OFFER TO CLUB PROMOTERS.

WRITE FOR PRICES, SAMPLES AND PAMPHLET.

WALKER, STRATMAN & COMPANY, - PITTSBURGH, PA.

SIX USES FOR LEMONS.

No family should be without lemons. Their uses are almost too many for enumeration.

The juice of a lemon, taken in hot water on wakening in the morning, is an excellent liver corrective, and for stout women is better than any anti-fat medicine ever invented.

Glycerine and lemon juice, half and half, on a bit of absorbent cotton, is the best thing in the world wherewith to moisten the lips and tongue of a fever-parched patient.

A dash of lemon in plain water is an excellent tooth-wash. It not only removes tartar, but sweetens the breath.

A teaspoonful of the juice in a small cup of black coffee will almost certainly relieve a bilious headache.

The finest of manicure acids is made by putting a teaspoonful of lemon juice in a cupful of warm water. This removes most stains from the fingers and nails, and loosens the cuticle more satisfactorily than can be done by the use of a sharp instrument.

Lemon juice and salt will remove rust stains from linen without injury to the fabric. Wet the stains with the mixture and put the article in the sun. Two or three applications may be necessary, if the stain is of long standing, but the remedy never fails.

Lemon juice (outward application) will allay the irritation caused by the bites of gnats or flies.

Lemon peel (and also orange) should be all saved and dried. They are a capital substitute for kindling wood. A handful will revive a dying fire.

Two or three slices of lemon in a cup of strong tea will cure a nervous headache.

Lemon juice removes stains from the hands.

The natives of India clean brass trays, Indian and Moorish brass work, pipe stands, and all such things, with a cut lemon. Wipe afterwards with a leather.

Fill a wide-mouthed pint bottle half full of brandy, and whenever you have bits of waste lemon rind, pare the yellow part thin and drop it into the bottle. A few drops make an excellent flavoring for tarts, custards, blanc manges, etc.

STOCK LABELS.

F. H. Jackson & Co., Winchester, Ky., advertise their celebrated aluminum stock markers and poultry legbands in another column. All breeders should have an ample supply of these most useful articles on hand always.

THE NEWTON DEHORNER.

The H. H. Brown Mf'g Co., Decatur, Ill., are advertising this well known instrument in another column. Send for circulars.

"I'll bet I know what's one white man's burden!" exclaimed the bad boy. "Willie!" exclaimed his elder sister indignantly, "if you don't stop peeking into the parlor when Mr. Jones calls, I'll never give you the money to buy any more marbles."

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

..AGENTS WANTED..

FRANKLIN DAVIS NURSERY CO., Baltimore, Md.



TREES

APPLE, PEACH, PEAR, PLUM, &c.

Grape Vines, Ornamental Trees, Shrubs, Roses, &c.

ALL THE DESIRABLE STANDARD AND NEW VARIETIES.

Headquarters for Tennessee Prolific Strawberry.

The Most Reliable Variety Ever Grown in the South.

Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogues free.

AGENTS WANTED. WRITE FOR TERMS.

W. T. HOOD & CO.

OLD DOMINION NURSERY. RICHMOND, VA.



Elmwood Nurseries.



We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.

APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,

QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.

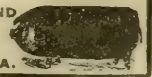


POLAND CHINA PIGS.

BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.

WRITE FOR DESCRIPTIVE CATALOGUE.

J. B. WATKINS & BRO., HALLSBORO', CHESTERFIELD CO., VA.





STRAWBERRY PLANTS: Excelsior, Johnson's Early, the two best early berries. Six other choice kinds. Large stock; guaranteed true to name; fresh dug; free from all disease. Raspberries, Blackberries, Asparagus roots, Seed Potatoes. Headquarters. Come earlier and grow larger crops than any other seed. Send for free catalogue to-day. J. W. HALL, Marion Station, Md.



REVISED

Clubbing List for 1899.

The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever journal you wish.

DAILIES.	PRICE ALONE	WITH PLANTER
The Dispatch, Richmond, Va.	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harpers' Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeders' Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harpers' "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 25
Cosmopolitan "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan, "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish *no sample copies* of other periodicals.

Seed House of the South.

RED CLOVER,
MAMMOTH CLOVER,
CRIMSON CLOVER,
WHITE CLOVER,
LUCERNE CLOVER,
ALSYKE CLOVER,
BOKHARA CLOVER,
JAPAN CLOVER,
BUR CLOVER,



TIMOTHY
ORCHARD GRASS,
RED TOP or HERDS GRASS
KENTUCKY BLUE GRASS
RANDALL GRASS,
TALL MEADOW OAT GRASS
JOHNSON GRASS,
GERMAN MILLET,
BUCKWHEAT.
OATS and
CANE SEED.

"Whatsoever One Soweth, That Shall He Reap."

We sell strictly reliable FIELD AND GARDEN SEEDS of every variety at Lowest Market Rates, included in which are RAGLAND'S PEDIGREE TOBACCO SEEDS.

WE ALSO SELL

Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

Wm. A. Miller & Son, 1016 Main Street LYNCHBURG, VA.

ORGANIZED 1865.

VIRGINIA STATE INSURANCE CO.,

OF RICHMOND, VIRGINIA.

Losses Paid Exceed - $1,800,000.00.
Assets Exceed - - 450,000.00.

N. V. RANDOLPH, President. CHAS. K. WILLIS, Treasurer.
ROBERT LECKY, Jr., Secretary.

RATS IN DRAINS.

By a Country Chemist.

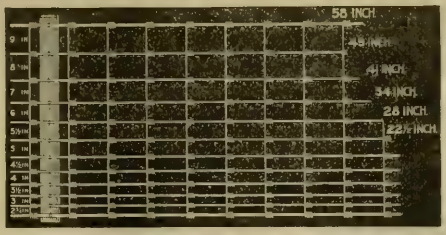
At this time of year, when rats which have been getting their living in hedgerows during the summer, return to the steading, it may be worth while calling attention to a means of getting them out of drains, which a sea captain discovered by accident during some necessary disinfection, and has been found so successful among his friends ashore as to induce him to make it public in an American paper. Space will not permit the reproduction of the story here, but the essential fact is that rats cannot, or will not, remain in the presence of free chlorine.

No matter how good a dog or cat you may have, he or she cannot go down a 4 inch drain, and a rat can; but you can, with perfect safety, and with advantage from a sanitary point of view, send down after the rodents a solution of chloride of lime, which, if strong enough, would actually kill, but even diluted very greatly will make the chosen home untenable. So many new, but not better disinfectants have been before the public for the last thirty years that a generation has arisen unacquainted with the nasty smell of chlorinated lime. It may be as well, then, to explain to those of our readers who are something of chemists, that we do not refer to the chemical product which is rightly called chloride of lime, or calcium chloride for even the harnessing of a base and a radical has been reversed since we were boys), but to the supersaturated lime, with chlorine gas in a confined chamber, and sold under the trade name of chloride of lime. It is not truly soluble in water, but one pound of it stirred in a bucketful of water makes a very good preparation in which a large proportion of the chlorine has become dissolved, and will be held for some time. There is no need to block the small pipe from the scullery sink with the solid portion, but the decanted or strained fluid is a rat driver, and one of the most efficient disinfectants at the same time.

Young Lady.—"How much?" Telegraph Clerk.—"Sixpence." "For that one word?" "Yes. Same charge for twelve words, or less. You can repeat the 'Yes' six times if you wish." "Um—no, that wouldn't look well. It is an answer to a proposal of marriage."

RED POLL CATTLE.

Capt. V. T. Hills, Delaware, O., the veteran Red Poll cattle-breeder, has recently added to his already magnificent herd a bunch of twenty splendid specimens, imported direct by him from England. See his "adv." elsewhere in this issue.



Now is the time to take up the Question of

FENCING.

Make no arrangements until you have fully investigated the superior merits of

American Field and Hog Fencing.

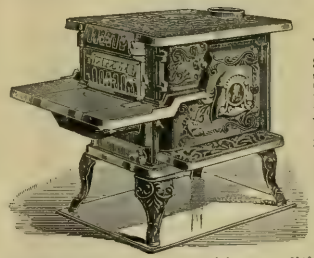
All best spring steel woven wire, heavily galvanized. **Most durable, efficient and economical.**

A fence for a lifetime at lowest possible price. See our agent in your town, or, failing to find our agent, write to

American Steel and Wire Co.,

CHICAGO, NEW YORK, SAN FRANCISCO.

The People Now Realize It.



A little over a year ago we advertised that we would sell one stove of our make to anybody, as low as a dealer could buy a carload. Then, our trade was limited to Virginia and North Carolina; since we advertised this, we have shipped them to every State from New York to Florida, and as far west as Ohio—right in the heart of other stove manufacturers.

Nothing but praise comes from these States for their baking qualities and excellent finish. The celebrated **FITZ LEE COOK STOVES** are destined to be in more homes and more States than any other stove ever made. WRITE FOR INFORMATION.

SOUTHERN STOVE WORKS, 815 to 827 N. 17th St., Richmond, Va.



EXCEL GRINDING MILL

Grind your own corn corn-ears, oats, millet, anything you like. This mill does as good work as can be done. We prove it by best of testimonials. At least let us tell you about it.

PRICE, FROM $17 UP.

INDIAN CHIEF Sheller.
INDIAN SQUAW Sheller.



Either shells 1 bushel of corn in 4 minutes; does it clean, and separates cob from corn. Cannot break. The most durable and satisfactory. PRICE: "Chief" $1.75; "Squaw," $1.25. Repairs furnished free. Write for booklet.

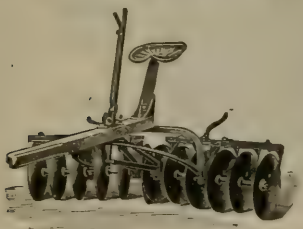
EXCEL HAND MILL.



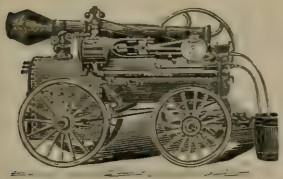
A perfect mill for dry bones, crockery, grain, etc., for poultry; or for corn-meal, coffee, spices, etc., for household. Made of choicest material and guaranteed the best made. Grinds coarse or fine. Thousands now in use. Write to

EXCEL MFG. CO., Pottersville, N. J.

LABOR-SAVING IMPLEMENTS AND MACHINERY.



DISC HARROWS—All Sizes.



ENGINES—4 to 100 Horse-Power, Portable or Detached.



Combined Feed Mill and Horse Power.

Indispensable to every farmer. Grinds ear or shelled corn, grain of all kinds. Is also a first-class HORSE POWER for all purposes.

CROWN, CRESCENT and WATT PLOWS—all sizes.

SOUTH BEND CHILLED, and other Plows and repairs of all kinds.

THE HANCOCK DISC PLOWS give satisfaction in all kinds of soil and work.

BUCKEYE DISC or HOE GRAIN and FERTILIZER DRILL sows Grain, Fertilizer, Peas and Corn.

CORN PLANTERS—single and double row.

CONTINENTAL DISC HARROWS with Roller Bearings.

GEISER ENGINES, THRESHERS and SAW MILLS—all sizes.

CORN and FEED MILLS for Horse or Steam Power.

CORN SHELLERS for hand or Power.

LAND ROLLERS—steel or wood rim.

DISC CULTIVATORS combined with Harrow.

MOWERS—Chain drive or geared. Roller bearings.

BINDERS with roller bearings. Latest improvements.

HAY RAKES—All Steel, Hand or Self Dump.

HORSE POWERS—all sizes, lever or tread.



ALL-STEEL LEVER HARROWS.

Straight or slanting tooth at will of operator.



SAW MILLS.

All Sizes. Latest Improvements.



ENSILAGE CUTTERS.

The UNION Cutter and Shredder, the ST. ALBANS Shredder, the HOCKING VALLEY Cutter.

NEW ALL STEEL, FULL CIRCLE BALING PRESS

With large feed opening and largest plunger travel of any of its class. When telescoped for the road is nine feet shorter than when in operation.



STEAM AND HAND-POWER PRESSES for All Purposes.

Farm, Freight and Log... WAGONS. The best products of six factories. Thimble Skein, Steel Skein and Steel Axle. Sizes for one to six horses.



IMPLEMENTS, MACHINERY AND VEHICLES OF EVERY DESCRIPTION.

THE WATT PLOW COMPANY,

Office, Cor. Franklin and 15th Streets,

RICHMOND, VIRGINIA.

WRITE FOR CATALOGUES.





THE HANDSOMEST CATALOGUE OF 1900.

Last year we printed and distributed 300,000 catalogues. This year we printed and shall distribute 350,000 catalogues of the now world famous "PLANET JR. GOODS." Our last year's catalogue was acknowledged to be the best, most instructive and handsomest catalogue ever issued devoted to a similiar subject. Our 1900 catalogue will be superior in every way to that one. It is profusely and handsomely illustrated with photographed farm scenes from all Europe, Australia, South America and other foreign lands. In addition to being beautiful it will be most instructive as to the quality and utility of the goods it represents, and as to the agriculture, gardening, etc., of foreign lands. The new catalogues are now ready and will be mailed free on application.

The "PLANET JR." line comprises Seed Drills, Wheel Hoes, Horse Hoes, Cultivators, Harrows, Two Horse Cultivators and Sugar Beet Seeders and Cultivators.

S. L. ALLEN & COMPANY, Box 1107-X Philadelphia, Pa.

UNCLE DAN'S PHILOSOPHY.

Ever heard of Uncle Dan?
Such a queer, peculiar man!
Never grumbles, come what may,
"What's the use of it?" says he;
"Frettin' never seems to pay—
Anyway, it don't with *me*.
When a thing has happened—why
"What's done can't be helped,' says I;
So, to show you've got some grit,
Grin, and make the best of it!"

Strange old fellow, Uncle Dan!
"Always stan' up for a man
When they're down on him," says he,
"'Till you *know* he's in the wrong—
Frien's ain't what they ought to be
When you buy 'em with a song.
I go in for trustin' men;
Sometimes I get fooled—but then,
Better trust and be deceived
Than to never have believed!"

Dear, old-fashioned Uncle Dan!
Steadfast friend and honest man;
Brave with faith in human kind,
Strong with trust in God above;
To a comrade's frailties blind,
Quick to see with eyes of love!
There's a sermon in his creed,
Surely he who runs may read;
And the world's a brighter place
Since he looked it in the face.

Eben E. Rexford, in Lippincott's Magazine.

THE NATURAL INFERENCE.

A gentleman was riding on one of the coaches in the Trossachs of Scotland, when the driver said to him: "I've had a coin guv me to day 200 years old. Did you ever see a coin 200 years old?" "Oh, yes,' was the reply. "I have one myself 2,000 years old." "Ah," said the driver, "have ye?" And he spoke no more during the rest of the journey. When the coach arrived at its destination, the driver came up to the gentleman with an intensely self-satisfied air and said: "I told you as we came along that I had a coin 200 years old." "Yes." "And you said to me as you had one 2 000 years old." "Yes, so I have." "Now, you be a liar." "What do you mean by that?" "Why, it's only 1899 now!"—*London Answers.*

"What's in a name?" Everything, when you come to medicine. When you get Hood's Sarsaparilla you get the best money can buy.

MORGAN R. MILLS,

No. 23 North 9th St., RICHMOND, VA.

ARTISTIC WOOD AND SLATE MANTELS.

PLUMBING, HEATING, LIGHTING.
STOVES, RANGES and FURNACES,
REPAIR PARTS FOR ALL STOVES.



No. 707—Extension Top Surrey, with double fenders. Complete with side curtains, aprons, lamps and pole or shafts. Price, $80. As good as sells for $40 more.

Your Whole Family
Would Be Satisfied

with one of these surreys. They are handsome, strong, stylish, easy riding and durable. Selling on our plan you can examine it thoroughly before you are required to buy it.

WE HAVE NO AGENTS

but sell all goods direct from our factory to the purchaser at wholesale prices. We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively. We have pursued this plan successfully for 27 years. You assume no risk as we ship our goods anywhere for examination and guarantee safe arrival. Largest selection in the country as we make 175 styles of vehicles and 65 styles of harness. Catalogue free.



No. 180—Double Buggy Harness, with nickel trimmings. Price complete with collars and hitch straps, $22. As good as sells for $30.

ELKHART CARRIAGE AND HARNESS MANUFACTURING. CO., ELKHART, INDIANA



The No. 6 Iron Age Combined Hill and Drill Seeder is the most perfect combination implement ever offered. Drills accurately or drops in hills any distance desired. Can be easily and quickly changed into ten practical tools. It sows, rakes, hoes, cultivates, plows, levels, furrows, covers and hills. Can be converted with the wrench from a seed drill to a double or single wheel hoe in three minutes. It is ten tools in one and each of the ten is the very best of its kind. Saves days in the season's work.

Send for a free copy of the famous illustrated **Iron Age Book** for 1900. It is a guide book to prosperity.

BATEMAN MFG. CO., Box 167, Grenloch, N. J.

WALLERSTEIN PRODUCE CO.

10 and 12 South 13th Street, RICHMOND, VA.

NET CASH BUYERS of Southern Produce. HIGHEST PRICES paid for PEAS, BEANS, DRIED FRUIT, WOOL, FEATHERS, FUR SKINS, HIDES, &c. We can save you expense. Correspondence solicited.

IT WAS A MOSQUITO.

She was a simple country maiden. She came from the wilds of heaven knows where, and she was going to India for the first time. She was very nervous about the tigers, which she believed to be as common there as rabbits are in England, and she was much comforted when she was told that comparatively few men sahibs fall victims to their ferocity. "The mosquitoes are a great deal worse than the tigers," added her informant. "Mosquitoes! What are they? Do they bite," she asked. "Rather! They're grey things with long noses that come into your bedroom—swarms of them sometimes—and then you don't get a wink of sleep all night." When they were off Madras she came up to the captain, weeping bitterly, and implored him to let her stay on board. "I want to go back at once," she sobbed. "I wouldn't land here for anything. I've just seen a mosquito walking about on shore, and I'm sure if one of them came into my bed-room, I should never sleep again as long as I live." "Very big mosquito," said the captain "Wonder whether I can see it;" and he took his strongest binoculars. "O," she cried, "you won't want your opera glasses. You can see it quite plainly without." And so he could, but what he saw was an elephant.

SOME DEFINITIONS IN EPIGRAM.

An optimist is a man who has succeeded in associating with humanity for some time without becoming a cynic.

Public Opinion is a conscience owned by a syndicate

Regret is but the light of fuller wisdom from our past, illumining our future. The life without regret is the life without gain.

Love is the wondrous angel of life that rolls away all the stones of sorrow and suffering from the pathway of duty.

Worry is forethought gone to seed. Worry is discounting possible future sorrows so that the individual may secure present misery.

Affectation is the confession of inferiority. It is an unnecessary proclamation that the individual is not living the life he pretends to live.

Duty looks at life as a debt to be paid; love sees life as a debt to be collected. Duty is constantly paying assessments; love is constantly counting its premiums. —*William George Jordan*, in "The Kingship of Self-Control."—(Fleming H Revell Co.)

THE "BOSS" FEED MILLS.

Farmers who contemplate buying a Feed Grinder are requested to write to The Woodcock Foundry and Machine Works, Chillicothe, O., for circulars descriptive of the "Boss" Feed Mill. See advertisement elsewhere in this issue.

"How were you able," said the poor man, "to acquire such an immense fortune?"

"By a very simple method," replied the wealthy citizen. "When I was poor I made out I was rich, and when I got rich I made out I was poor."

The Implement Co.

1302-1304 E. Main St., RICHMOND, VA.

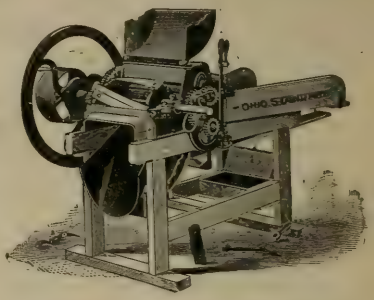


Those who desire a Plow that will do the best work with the least draft, should use the

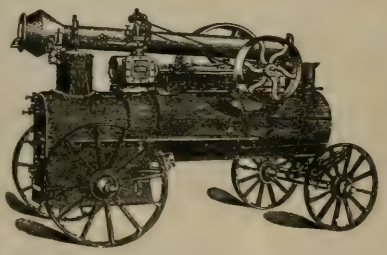
IMPERIAL CHILLED PLOW,

which is undoubtedly the best made. We likewise have the BISSELL, OLIVER PATTERN CHILLED and the DIXIE and FARMER'S FRIEND CAST PLOWS, as well as repairs for all of them.

THE OHIO ENSILAGE FEED CUTTERS and SHREDDERS . . .



Are superior to all others These machines are all made on one pattern and are covered by U. S Patent. The points of superiority are mentioned in catalogue, which we will have pleasure in mailing to any address.



ENGINES, SAW MILLS, THRESHERS, HORSE POWERS.

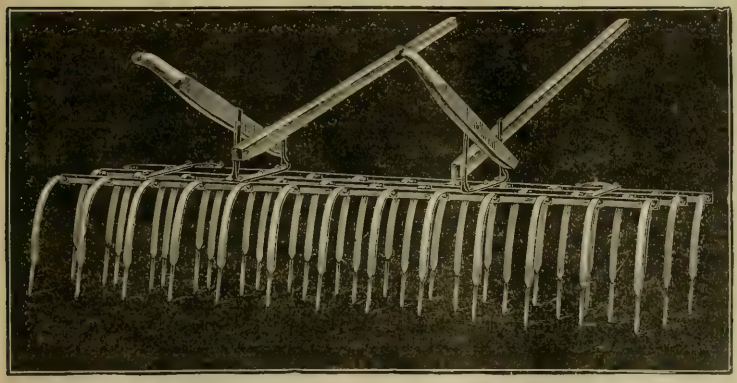
All kinds of AGRICULTURAL IMPLEMENTS, including WAGONS, CARRIAGES, HARNESS, PUMPS, CORRUGATED and V-CRIMP ROOFING, WIRE FENCING, Etc. Prices and catalogues on application.

THE IMPLEMENT CO.,

1302-1304 E. Main Street, RICHMOND, VA.

Hallock's SUCCESS Anti-Clog Weeder

TAKE NOTICE—There will be absolutely no advance in price.



40,000 now on the farms of the United States.

Over 6,000,000 more that need them.

We have decided we may as well have most of this enormous trade, and we know the farmers of our country have sufficient good judgment to buy where they can buy the cheapest, especially when they find the best goods at the same place.

DON'T LET your dealer talk you into buying any other as being "just as good"; THERE ARE NONE "just as good." YOU NEED A WEEDER; YOU WANT THE BEST—come to us.

D. Y. HALLOCK & SONS, Lock Box 829, York, Pa.

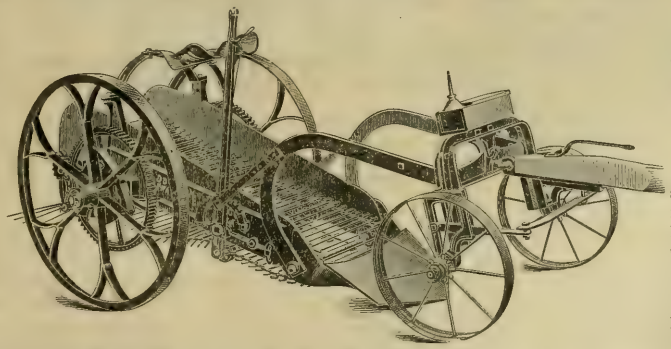
The DOWDEN POTATO HARVESTER

Received First Award over all competitors at the World's Fair. It is one of the greatest labor-saving machines on the market to-day for the farmer.

It combines
Strength, Capacity, Durability.

It is a perfect success in every respect.

WRITE FOR CIRCULAR GIVING FULL DESCRIPTION.



It is...
Simple, Practical, Invaluable.

It is endorsed and recommended by hundreds of users.

Write for prices.

We also manufacture **The Prairie City Potato Cutter** for cutting Seed Potatoes; **The Dowden Potato Sorter,** which will also sort fruit and onions; capacity, 1200 bushels per day; **The "Dewey" Lawn Swings; The Dowden Weed Harrow,** a splendid tool for smooth ground. Write for prices and free catalogues.

DOWDEN MANUFACTURINC CO., Prairie City, Iowa.

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



crushes, cuts, lifts, pulverizes, turns, aerates and levels all soils, for all purposes under all conditions. Made entirely of *cast steel* and *wrought iron*, they are *indestructible*. They are the cheapest and best riding harrows and pulverizers on earth. Various sizes, for various uses, 3 to 13½ feet. We mail catalogue and booklet, "An Ideal Harrow," free.

SENT ON TRIAL TO BE RETURNED AT MY EXPENSE IF NOT ENTIRELY SATISFACTORY. I deliver free on board at New York, Chicago, Columbus, Louisville, Minneapolis, Kansas City, San Francisco, &c.

Address DUANE H. NASH, Sole Mfr., Millington, N. J. or Chicago, Ill.

MENTION THIS PAPER.

WHAT TROUBLED PAT.

An old Irish laborer walked into the luxurious studio of an artist and asked for money to obtain a meal. He explained that he had just been discharged from the county hospital, and was too weak to work. He was given a quarter and departed. One of four young ladies, art-students, who were present, said: "Mr Madder, can't we hire that old man and sketch him?" Madder ran out and caught him and said: "If you can't work, and want to make a dollar, come back to my rooms. The young ladies want to paint you." The Irishman hesitated, so Madder remarked: "It won't take long, and it's an easy way to make a dollar." "Oi know that," was the reply, "but Oi was a-wonderin' how th' divil Oi'l git th' paint off afterward!"—*The Argonaut.*

A hot linseed-meal poultice placed over the epigastrium—that is, just below the waist—will often stop an attack of sickness when all other remedies fail.

The juice of a fresh lemon, with a very little sugar, squeezed into a tumblerful of hot water will help to ward off an impending bilious attack.

It is erroneous to suppose that hot baths predispose one to catching cold. A hot bath stimulates one almost as much as a good meal, and thereby acts as a preventive to cold; whilst a warm or tepid bath acts as a depressant.

If any one doubts the nourishing properties of milk, test it in the following way: When tired and weary, heat a glass of milk to scalding point until a thin skin begins to wrinkle upon the surface, then drink it as hot as possible. It refreshes almost instantly, and restores the exhausted vitality surprisingly.

A COMPLIANT PARENT.

The following form may be helpful to the anxious would be son in law who shivers at the mere thought of a preliminary interview with "papa":

"I have come to ask for Dorothy" I said, as we stood in the doorway, she giving my hand an encouraging squeeze.

"And I for Robert father," added my Dorothy, as she crossed swiftly over and wound her arms about his neck.

Her father's eyes twinkled.

"Ah," said he, "a joint appeal. With such unanimity as this, I suppose that it only remains for me to announce that you are yours."—*Mack Lee Luther, in the November "New Lippincott."*

The better evil is, the worse it is.

GILLETTE HORSE CLIPPING MACHINES.



OVER 20,000 MACHINES SOLD IN EUROPE.
A Few Foreign References.
The Royal Mews, Royal Stables,
H. R. H. The Duke of York,
His Grace The Duke of Portland,
His Grace The Duke of Wellington,
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His Grace The Duke of Buccleuch,
His Grace The Duke of Newcastle.

OVER 60,000 MACHINES SOLD IN UNITED STATES.
A Few United States References.
F. W. Vanderbilt, Walter H. Webb,
J. McC. Twombley, Charles Broadway Rouss, Henry Hilton, C. R. Flint, W. R. Grace, Henry Seligman.

Send for Catalogue, showing our different styles.

"MODEL B" $20, WITH 2 CUTTERS.

EXTRA CUTTERS, $2. ALL KINDS OF CLIPPERS GROUND, 50c.

GILLETTE CLIPPING MACHINE CO., 110, 112 & 114 W. 32d St., New York.

FARMERS! I Manufacture the following Brands of..... FERTILIZERS



Read these analyses and prices.

PURE GROUND ANIMAL BONE } Price f.o.b. cars here,
Total Phosphoric Acid.....19.45
Total Ammonia.....4.83 } **$25.00.**

FLESH, BLOOD AND BONE
Phosphoric Acid.....11.39
Ammonia.....4.98
Potash.....2. } **$25.00.**

Good for all Crops and Permanent Improvers of the Soil.

JAS. B. BICKERSTAFF, - Richmond, Va.

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Merchants National Bank

OF RICHMOND, VA.

Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.
Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

Capital Stock, $200,000
Surplus and Profits, $330,000

JNO. P. BRANCH, President. JNO. K. BRANCH, Vice-President. JOHN F. GLENN, Cashier.

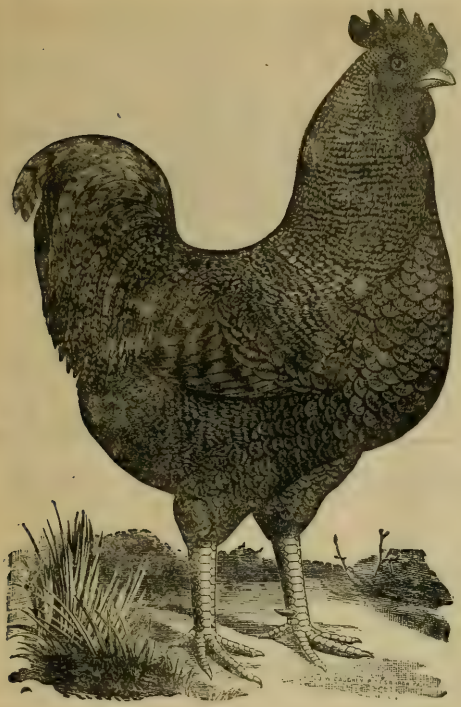
DIRECTORS.—John P. Branch, B. B. Munford, Chas. S. Stringfellow, Thos. B. Scott, B. W Branch, Fred. W. Scott, Jas. H. Dooley, Jno. K. Branch, A. S. Buford, R. C. Morton, Andrew Pizzini, Jr., J. P. George.

FERTILIZERS—FROM FACTORY TO FARM

WE SELL YOU DIRECT. NO AGENT'S PROFITS.
NO SALESMAN'S EXPENSES.

VALUABLE PREMIUMS GIVEN FREE.

For premium list, prices, samples and book, write
THE SCIENTIFIC FERTILIZER COMPANY, HERR'S ISLAND, PITTSBURG, PA.



Ivanhoe Poultry Yards,

HENRICO COUNTY, VA.

ONE MILE FROM RICHMOND.

We have the finest Barred Plymouth Rocks in the South.

50 Extra Fine Cockerels For Sale Cheap.

Having decided to breed nothing but Barred Plymouth Rocks, will sell some extra good Indian Games, Brown Leghorns, and Black Langshans very cheap to close out.

ADDRESS:

Ivanhoe Poultry Yards,

BOX 258. RICHMOND, VA.

ALAMANCE STOCK FARM, Graham, N. C.

Fine Trotting, Road and Harness HORSES For Sale

The get of the renowned pacing stallion JOHN R. GENTRY, 2:00½; BARONET, 2:11½; ABERDEEN; DICTATOR; HANNIS, 2:17¾; GREGORIAN, 2:29¾; LELAND, and other famous sires FOR SALE Also SHETLAND PONIES.

STALLIONS IN THE STUD FOR 1900:

GREGORIAN, 2:29¾, by Prince George, out of Beltina, by Mansfield.

NOTE.—Gregorian is a chestnut horse of grand style and finish, and winner of blue ribbon for best stallion at North Carolina State Fair in 1899. Simply to encourage the breeding of fine harness horses, Gregorian's fee for 1900 has been placed at $15.

GILES MEBANE, brown colt, foaled 1896, by John R. Gentry, out of Winnie D. (dam of Hulmar, 2:20, and Ginter, 2:24½), by Hannis, 2:17¾; private stallion for 1900.

The following SHETLAND STALLIONS will be in the stud for 1900; fee, $10, each:

GOVERNOR PECK, a prize winner at the World's Fair, Chicago; **MONTROSE,** a blue ribbon winner wherever exhibited at the North Carolina Fairs; **DUPONT,** a sire of premium winners.

Closing-Out Sale of over twenty breeds of FANCY CHICKENS and BRONZE TURKEYS at greatly reduced prices.

NOTE.—The Alamance Poultry Exhibit won gold medal at North Carolina State Fair in 1896.

ALAMANCE FARM is on the line of the Southern Railway, twenty-three miles east of Greensboro, N. C. Communications promptly answered by

L. BANKS HOLT, Proprietor, Graham, N. C.

"GENUINE" BROWN
WALKING CULTIVATOR.



Made with either Single or Double Tongue. Has Brown's Patent Revolving Couplings—set the gang plumb, or shovels at any desired pitch. Brown's Patent Draft Flange regulates the depth for either deep or shallow plowing. Improved Beam Head protects gangs from running sideways, by any chance, or dirt or shovels. Brown's Flat Springs—best and most practical spring on any cultivator. We make a full line of Riding, Walking and Tongueless Cultivators, the famous Gohn Surface Cultivators, Steel and Wood Harrows and Wagons. Free Catalogue.
BROWN MFG. CO., Zanesville, O.

SEE that your dealer furnishes this Harrow.
IT IS THE BEST

THE "BROWN" Zanesville, O.

No. 9, two section, 50 teeth
No. 7, two " 60 teeth
No. 10, three " 75 teeth
No. 8, two " 90 teeth



Manufactured only by
BROWN MANFG. CO., Zanesville, Ohio.

This excellent HARROW and CULTIVATOR is sold by

CHAS. E. HUNTER, - Richmond, Va.

GENERAL LEE'S MODESTY.

A month or so after his surrender General Lee went one day to the store near his home in Powhatan county, Va., which served also as the post office. Everybody in the town was instantly eager to see him, and in a few moments the store was crowded. The General was talking with the proprietor about crops and other matters, and appeared utterly unconscious of the fact that the gathering of the residents was due solely to his presence. Suddenly he realized that everybody was watching him, and modestly said: "But I see I am keeping you from your many customers. Pardon me!" and at once withdrew.—*November Ladies' Home Journal.*

Dean Hole recently told a capital story of two Indians dining in England for the first time, when one of them took a spoonful of mustard, which brought tears to his eyes. The other said: "Brother, why weepest thou?" and he replied; "I weep for my father, who was slain in battle," and he passed the mustard. The other then took a spoonful, and he had a tear trickling down his cheek. Said the first Indian: "Why weepest thou?" and he replied: "I weep because thou wast not slain with thy father."

A Possible Reason.—"I don't see why a woman is always holding up her skirt with one hand," growled Bickett, "I suppose," replied Mrs. Bickett, "it's because she has no trousers' pocket to carry her hand around in."

"Mamma," said little Bessie, just after attending services at church, "are people who sit in the middle aisles wickeder than those at the side?" "Certainly not, dear. Why?" "Because the preacher only preached to them."

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

The Chesapeake & Ohio Railway

EXTENDING FROM CINCINNATI AND LOUISVILLE, AND

THROUGH ITS CONNECTIONS

THE BIG FOUR SYSTEM, from Chicago, St. Louis, Peoria, Indianapolis Sandusky and Cleveland;

THE OHIO CENTRAL LINES, from Toledo and Columbus;

THE CINCINNATI, HAMILTON & DAYTON, from Detroit, Toledo, Lima, and Dayton—

FORMS THE MOST DIRECT And from Five to Twelve Hours the Quickest ROUTE

To STAUNTON, LYNCHBURG, CHARLOTTESVILLE, RICHMOND, PETERSBURG, NORFOLK, And Principal Virginia Points.

Catalogue, with list of farms for sale, may be secured by applying to the following agents:

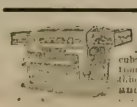
C. B. RYAN, A. G. P. A., C. & O. Ry., Cincinnati, O.; E. B. POPE, Western P. A., C. & O. Ry., corner Broad and Chestnut Sts., St. Louis; R. E. PARSONS, Ticket Agent, 253 Fourth Ave., Louisville, Ky.; J. C. TUCKER, General Northern P. A., Big Four Route, 234 Clark Street, Chicago, Ill.; H. M. BRONSON, Asst. General Passenger Agent, Big Four Route, Indianapolis, Ind.; E. O. McCORMICK, Passenger Traffic Manager, Big Four Route, Cincinnati, Ohio; D. G. EDWARDS, General Passenger Agent, C. H. & D. Ry., Cincinnati, Ohio; MOULTON HOUK, General Passenger Agent Ohio Central Lines, Toledo, Ohio; or to

H. W. FULLER, Gen. Pass. Agt. C. & O. Ry., Washington, D. C.

The Richmond Dry Cold Storage Co.,

2ND MARKET, RICHMOND, VA.

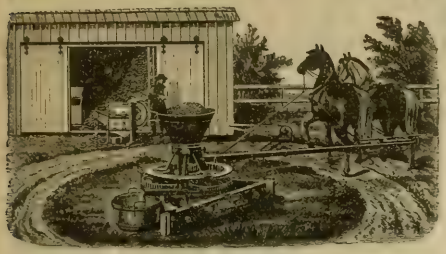
COLD STORAGE for FRUITS, VEGETABLES, BUTTER, EGGS and POULTRY. Don't sacrifice your product on a glutted market, but double your price by putting in cold storage at a cost of a fraction of a cent per pound per week.



A PRACTICAL POULTRY BOOK one which covers every detail of the industry from incubation to market your 20th CENTURY CATALOGUE. It will teach you from the practical experience of others what it would take you to learn alone. Among other things it tells about the latest improvements in the world famous Reliable Incubators and Brooders. Sent for 10c to pay postage. Reliable Inc. & Brdr. Co. Box B 111 Quincy, Ill.

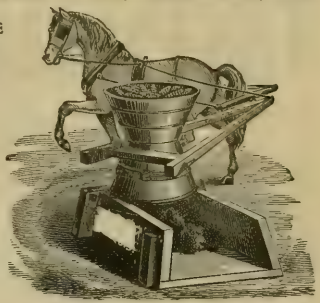


CHAS. E. HUNTER, 1528 East Main Street, RICHMOND, VA.



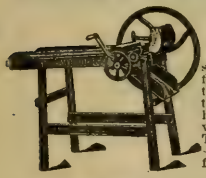
IDEAL FEED MILL and HORSE POWER COMBINED

For all kinds of Corn and Cob. Write for prices and Catalogues.



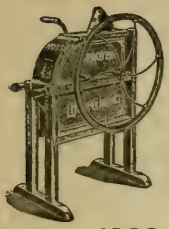
ROSS FEED CUTTERS. POWERS AND CORN AND COB MILLS.

STUDEBAKER and BROWN FARM WAGONS, CARTS and BUGGIES.



HAND POWER CUTTER.

These machines sell at sight. They have heavy fly wheels and make three cuts to each turn of the crank. They will cut hay, straw or fodder, and will cut from ¼ to 2 in. They are shipped K. D., securing the lowest possi- freight rates.



LITTLE GIANT CORN SHELLER.

The frame is made of thoroughly dry hard wood. The joints are mortised, tenoned and bolted. The bearings are bolted on to the frame instead of screwed. The iron work is made from the very best material, and every piece is carefully inspected before being put on. This machine is high-grade all the way through. It is handsomely painted, striped and varnished.

SPECIALTIES.

The Genuine Oliver Chilled Plows and Repairs.
Genuine Farmer's Friend Plows.
Studebaker and Brown Farm Wagons, Carts and Buggies,
Land Rollers and Harrows,
Ross Feed Cutters and Horse Powers,
Grinders, Wood Saws and Carriers,
Superior Grain Drills,
Subsoil Plows,
Champion Mowers, Reapers and Binders, Hay Rakes,
Iron and Wood Pumps,
I. X. L. Wind Mills,
Milwaukee Hay Tools and Corn Huskers and Shredders,
Aultman & Taylor Threshing Machines, Engines and Saw-Mills,
Disc Harrows and Disc Cultivators,
Hand Cutters,
Fodder Shredders,
Corn Shellers,
Tread and Sweep Powers,
Grinding Mills,
Corn Huskers,
Wood Sawing Machinery.



The TIGER All-Metal Disc Harrows with one and two levers.

Prices and Catalogues Furnished of all implements.

ELI PRESSES—38 styles and sizes.

Baling Wire and Bale Ties at Lowest Prices.

1900 PRICES NOW READY. ALL GOODS GUARANTEED.



ESTABLISHED 1845.

NOTHING TOO LARGE.
NOTHING TOO SMALL.

J. W. Fergusson & Son,

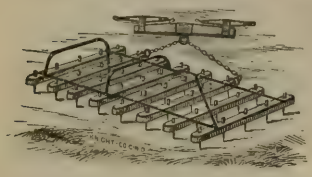
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4-6-8 N. Fourteenth St. Richmond, Virginia.

The Farmers Supply Co., 1433 E. Main St., RICHMOND, VA.

Now has in stock a full line of IMPLEMENTS, TOOLS, BUGGIES, WAGONS, HARNESS, WIRE, Etc., and guarantees them to be of the best material and lowest prices. Send for catalogues giving full description and prices



We offer bargains in

..DRAG HARROWS..

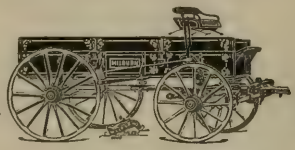
This folding harrow is strong, durable and cheap. We also handle SPRING TOOTH HARROWS.



We are agents for the justly celebrated

MILBURN WAGON.

We have a large consignment on hand, and prices will suit you. Don't fail to examine our stock of BUGGIES.



The Improved

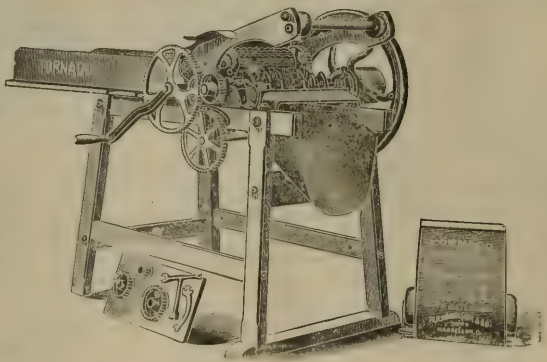
TORNADO DISC HARROW

is one of the best implements for the farm. Practically indestructible. Easy of operation. Gangs set at any angle.

There is no Ensilage Cutter on the market that can equal the

Tornado.

It cuts, splits, tears and shreds every particle of corn, hay, straw, and can be used as a root cutter.

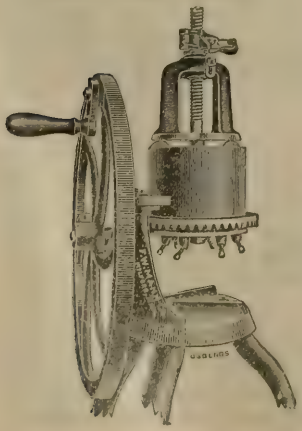


The

Tornado

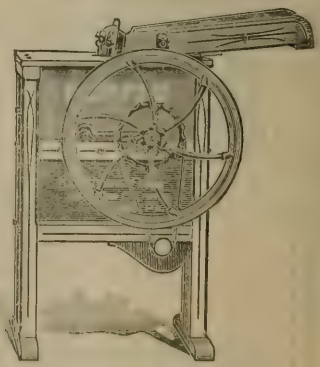
is made in nine sizes, hand and power. Strong durable, and easy of operation. As the cut is continuous there are no jolts or jerks. Send for prices and circulars.

MANN'S BONE CUTTER.



THE "TORNADO."

CLIPPER CORN SHELLER.



We have just received a large shipment of

MANN'S NEW BONE CUTTERS.

These machines are guaranteed to cut dry or green bones with meat and gristle attached without clog, or money refunded. All sizes and prices.

THE CLIPPER CORN SHELLER

with feeder or without, hand and power, all sizes, is a good cheap machine.

Correspondence solicited. Catalogues and circulars mailed on request.

☞SEND FOR OUR BEAUTIFUL CALENDAR FOR 1900, FREE.

SHOCKOE WAREHOUSE

..FOR THE SALE OF LEAF TOBACCO..

RICHMOND WAREHOUSE CO., Props. *WILL L. HAZELL, Manager.*

R. H. SARVAY,
A. OSTERLOH, Jr., } Salesmen.

Shockoe Slip, RICHMOND, VA.

For GOOD LIGHT, HIGH PRICES and FIRST-CLASS ACCOMMODATIONS, the OLD SHOCKOE cannot be excelled.

Remember. We pay you just as soon as your last pile of Tobacco is sold, thereby enabling you to get away early. So come to see us, first or last sale; we won't keep you late, and will guarantee you the TOP MARKET prices for your Tobacco.

JOHN P. BRANCH, President. JOHN KERR BRANCH, Vice-President. JOHN F. GLENN, Cashier.

CAPITAL, $200,000. SURPLUS, $270,000. UNDIVIDED PROFITS, $59,000,

UNITED STATES, CITY AND STATE DEPOSITORY.

MERCHANTS NATIONAL BANK,

No. 1754. RICHMOND, VIRGINIA.

COMPARATIVE STATEMENT FOR THE FOLLOWING YEARS:

ASSETS.

CLOSE OF BUSINESS ON	June 30, 1879	June 30, 1884	June 30, 1889	June 30, 1894	June 30, 1899
Time and Demand Loans	$367,174.04	$608,645.68	$625,959.79	$793,770 55	$1,298 402 42
Real Estate, Fixtures, &c	1,540.50	50,671.42	60 000 00	79,500.00	75,807.21
5% Redemption Fund	2,250.00	3,350 00	2.700 00	9.000 00	3,915 00
United States Bonds	50.000.00	200,000.00	485,000.00	400,000.00	922,000.00
Premium U. S. Bonds	3 000.00	15,875.00	80.000.00	14,000.00	40,000.0
Miscellaneous Bonds	3.249 77	52.295.60	9,417.00	91,334 75	371.285.99
Due from Banks and Bankers	25 102.85	40,867 80	54,453.67	356 966.40	959 671.37
Cash	60,595.28	218 098 59	265.383.50	190,957.41	558,295.14
	$512,912 44	$1,189,804 09	$1,582 914.06	$1,935,529.11	$4,029,377.13

LIABILITIES.

CLOSE OF BUSINESS ON	June 30, 1879	June 30, 1884	June 30, 1889	June 30, 1894	June 30, 1899
Capital Stock	$200,000 00	$200,0 '0.00	$200,000.00	$200,000.00	$200.000 00
Surplus and Undivided Profits	18,453.26	78,925.74	125 625 08	227,597.07	329 787 14
Circulation	45,000.00	177,000 00	54,000.00	169,800.00	77,200.00
Deposits	249,459.18	733,878 35	1.203,288.98	1,338,132.04	1,392,389.99
U. S. Bonds Liability Account					30,000.00
	$512,912 44	$1,189,804.09	$1,582,914 06	$1,935,529.11	$4,029 377.13

Business paper discounted for customers on favorable terms. A specialty made of collections in Virginia, West Virginia, Kentucky, Tennessee and North Carolina. Daily and direct communication with over three-fourths of the banking points in Virginia. Being the largest depository for banks between Baltimore and New Orleans, this bank offers superior facilities for direct and quick collections.

CORRESPONDENCE SOLICITED. WE WOULD LIKE TO DO YOUR BUSINESS.

THOMPSON & TRIMBLE,
SWOOPE, AUGUSTA CO., VA.
Breeders of Shorthorn Cattle and Shropshire Sheep.
...CORRESPONDENCE SOLICITED

IRRIGATION FIXTURES.

Editor Southern Planter:

It is more and more becoming a "burning question," how to cheaply and practically water at least a part of the land we till in the periods of drought which seem to be more and more frequent. I want to know the relative cost and capacity of the different means of pumping by wind-mill, by water wheel, by hydraulic engine, by hot air engine, naphtha engines, and small steam engine; also cost of pumps, pipe and tanks; also different nozzles, sprays and their capacity, distance watered, etc. I am a subscriber to the *Planter*, but have looked in vain for a directory of manufacturers of these things in your advertising columns. How can I learn these facts bearing upon the new system of agriculture which is surely coming?

A FARMER.

[Will not makers of pumps and irrigating machinery give the information by advertising their goods?—ED.]

A BIG BUSINESS BOOM.

A WELL-KNOWN FIRM SAYS NEWSPAPER ADVERTISING DID IT.

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STRONG ENDORSEMENT of the Northwestern Mutual Life Insurance Company.

John S. Ellett, President. Wm. M. Hill, Cashier.

THE STATE BANK OF VIRGINIA,
RICHMOND, VA.

October 30, 1899.

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MY DEAR SIR,—I am pleased to acknowledge receipt, through you, of the statement from your company relative to my twenty-year endowment policy, No. 102,992, for $2,000, which matures on the 24th day of April, 1900. I note that the dividend additions to this policy amount to $1,004.00, making a total cash value of $3,504.00 at maturity, besides a final dividend payable at the same time.

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Southern Planter

A MONTHLY JOURNAL

DEVOTED TO

Practical and Progressive Agriculture, Horticulture, Trucking, Live Stock and the Fireside.

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THE SOUTHERN PLANTER PUBLISHING COMPANY, - - - - - Proprietors.

J. F. JACKSON, Editor and General Manager.

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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, February, 1900. No. 2.

Farm Management.

WORK FOR THE MONTH.

With the exception of a few days at the beginning of the month of January, when we had a light snow and some frost, the New Year has opened in a most genial manner. The weather has been mild and almost spring-like, with but little rain; indeed, in some sections of this State and those further south, there is complaint of scarcity of water. This condition emphasizes the importance of making provision for the storage of water in the land if subsequent injury to crops from drouth is to be prevented should the spring and summer be dry. In no way can this be more successfully accomplished than by deep plowing and subsoiling, and the present condition of most arable land will allow of this work being carried on with great advantage so long as the weather continues fine overhead. Whilst there is, and always will be, a difference of opinion as to the advisability of fall plowing, there is no such difference as to early spring plowing. The only difference on this point is as to the depth of the plowing. When farmers come to thoroughly understand how crops grow and how plants feed, they will then realize how important it is that plowing should be done properly. The mere turning of a furrow of a few inches in depth, which is all that a great many farmers do and call it plowing, is but a poor excuse for what the crop calls for, if it is to be given the chance to make a successful growth. As crops take all their food in liquid form, it is absolutely essential that the soil in which they are to be planted shall be broken so deeply and so finely as to form a deep absorbent bed capable of retaining a large proportion of the rainfall to act as a solvent of the mineral plant food and to make this available for the crop. A solid, unbroken subsoil can never properly fulfil this function; neither can it be permeated by the fine rootlets of the plants through which alone nourishment is conveyed to the plant system. Whilst very many of our crops are apparently only shallow rooted, yet even for these a deeply broken soil is necessary if they are to be given the best chance of success, but for such crops this deep breaking should be done sufficiently long before the crop is planted to allow of compacting so as to permit of the capillarity of the soil being restored, which capillarity will ensure the feeding of the crop with the moisture stored in the deep subsoil. In the case of deep-rooted crops, these will forage for their feed if only the soil be sufficiently finely broken to permit of the roots penetrating the depths of the soil, yet even for these crops a certain compactness is more conducive to success than too loose a subsoil. The whole subject of plowing and breaking the soil is only just beginning to be understood. Experiments conducted in various States in this country, England, and in foreign countries, are shewing that, given proper conditions of moisture in the soil, nearly all crops have the power to lay hold of and assimilate plant food in the soil if only the soil is finely disintegrated and kept frequently cultivated—at any rate, to the extent of making a normal growth and

production. The realization of these facts is leading to great changes in the form of the implement which is the principal means of breaking the soil. In England, efforts are being made to substitute a digging machine for the plow, which shall not only turn over but break up the soil like the action of a spade. In this country, the disc plow is making great headway, and will, we believe, in a few years largely supplant the old turning plow. It effects is not only to turn over the soil, but to grind it and break it to pieces, and this it does by a rotary motion instead of by a wedge motion, and thus economizes power. What ever form of plow is used, see that it is used effectually. Do not be content merely to turn over two or three inches of soil and leave this in an unbroken strip. Such plowing amounts to little in the way of providing a good seed bed for a crop, and largely accounts for the failure to make satisfactory crops. Turn a furrow as deep as your team can do the work with comfort and follow the turn plow with either a subsoil plow or a coulter to break loose the subsoil. In turning the furrow endeavor, as far as possible, to break the furrow slice to pieces rather than leave it smooth. As Professor Roberts well says: "Plowing is poor that fails to do the greater part of the rough pulverizing and to leave the surface in the best possible condition for the effective use of the implements which are to follow." Where the land to be plowed is covered with a growth of weeds or stalks these should be broken down before plowing, as it is then so much easier to bury them effectually. A roller or a plank drag will do this work well, especially on a frosty morning. Cornstalks should be cut down and be removed from the land, as they are difficult to bury out of the reach of subsequent cultivation.

We want once again to emphasize the importance of not attempting the cultivation of more land than you are able to do full justice to in the way of plowing, cultivation and fertilizing throughout the crop growing year. The poor yield of crops per acre in the South is more to be attributed to this practice of extensive farming than to any natural want of fertility in the soil. If every acre planted in crops was given all the preparation previous to planting, and all the subsequent cultivation that was required to keep it in the best possible condition for ensuring a perfect growth of the crop. our yields of crops would be much larger per acre, even though not one pound more of fertilizer or manure was used, and if, in addition to this, the manure or fertilizer applied to two acres was all given to one, we should hear much less of unprofitable farming. When, as we have shown repeatedly, it is possible to produce from 50 to 180 bushels of corn to the acre, why will our farmers persist in growing only from 15 to 20 bushels? There is profit in even 50 bushels to the acre, but there can only be loss in the production of 15 or 20 bushels. It is just as easy to produce the larger yield as the smaller one, and involves relatively much less labor. Be an *intensive* farmer whether you are an *extensive* one or not.

If the weather continues as genial as at this writing there are two crops which may with advantage be seeded during this month. The first is a crop of Canada peas and oats, for a forage and hay crop. Few Southern farmers realize what a valuable crop this is for early green feed for cattle, sheep and hogs and for hay. To do well, however, in the South it must be seeded early. Both the grains are cold climate plants, and unless sown early in the South will be injured by the hot weather of May and June. If got in in February the crop will be ready for the mower in May, and can be followed by either corn or cow-peas. The yield of hay made is frequently from two to three tons to the acre, and this makes almost a complete ration for stock. As a hog pasture, it is one of the best. The peas should be first seeded at the rate of one bushel to the acre, and be plowed down. It is very essential to the success of the crop that the peas be covered deeply. The oats should then be sown at the rate of half to three quarters of a bushel to the acre, and be harrowed in. After this crop has been seeded the oat crop should be attended to. The Virginia grey winter oat is the best variety to sow this month, later we would advise the Rust-proof oat. Both of these will be benefitted by acid phosphate and potash, applied liberally, say at the rate of 250 to 350 lbs. to the acre. Use 50 lbs. of muriate of potash in this mixture to supply the potash required. The oat is a plant that is capable of extracting inert plant food from the soil more completely than most other crops, and farmers realizing this from experience usually treat the crop badly, putting it on poor land or on land that has already produced two or three crops since it was fertilized. This is bad farming, as no crop will pay better for good treatment. Winter oats seeded in the fall will be greatly helped by a top-dressing of farm-yard manure.

Farmyard manure should be got out on to land intended for the corn crop, as made. It will do more good there than on any other crop at this season of the year.

Clover and grass seeds, not seeded in the fall, may be seeded in the latter part of this month and in March. Whilst fall seeding of these is always to be advised in preference to spring seeding, yet, if from the lack of time in the fall, or from failure then to

secure a stand, no grass or clover is now growing, these seeds may now be sown. The reasons which we adduced in the fall in favor of seeding grass seed alone, and not with a nurse or cover crop of small grain, apply with even greater force to spring seeding. No one who wants to secure a good, permanent stand of grass, either for meadow or for pasture, ought to hesitate for a moment as to how to sow. Give the land wholly to the grass and clover, prepare it in the most perfect manner possible, so that the seed bed shall be deep and finely broken, fertilize it heavily with rotted farmyard manure well worked into the soil, or in its absence, with 400 pounds bone meal and 100 pounds of muriate of potash to the acre; seed heavily, say with not less than three bushels of seed to the acre, harrow in lightly, and then roll, and you will have every chance of making a fine grass field, which will give you a crop in the fall, or better, make grazing for stock in the fall months, which grazing, however, should not be continued so long as to eat down the herbage too closely. A top-dressing of nitrate of soda, at the rate of 100 pounds to the acre, applied when the grass has fairly commenced to grow, will help the crop materially. If ground bone is too expensive to be used in the quantity above suggested, acid phosphate may be used, wholly or in part, to supply the place, but in this event some nitrate of soda—say 50 to 75 pounds to the acre, should be used with it. Our experience has, however, convinced us that ground bone is the best fertilizer to use for securing or improving a stand of grass. It is lasting in its effect, and furnishes both the phosphoric acid and the nitrogen required by the crop. A mixture of grasses is better than any single variety, either for hay or pasture, but care should be taken when seeding for hay, to sow together only those maturing at the same time. If for pasture only, this does not matter; indeed, it is quite as well to have varieties so mixed as that they come to their best at varying times, thus keeping up the period within which the pasture will make good grazing. For hay; orchard grass, tall meadow oat grass, herds grass (sometimes called red top) and Italian rye grass makes a good mixture with a light seeding of red clover, or alsike clover. For a pasture these grasses should have mixed with them Virginia or Kentucky blue grass, meadow fescue and Hungarian brome grass. Timothy should always be seeded alone, and only for hay. It should never be grazed. For wet land herds grass (red top) is the best grass that can be seeded, either for hay or pasture.

Tobacco plant beds should be got ready and sown at once. Mr. J. M. Barker, one of the largest and most successful tobacco-growers in the State, thus describes his method of preparing and seeding his plant bed: "After I have selected my land for a seed bed, which should be a new place every year, I burn the land sufficiently hard to kill all vegetation. This burning may be done at any time from November 15 until the 25th March, but the seed should not be sown before January. I sow one tablespoonful of seed to 100 square yards. By sowing this quantity of seed, you will not have your plants too thick in the bed. After burning, I prepare the bed very fine, and from 2 to 3 inches deep. I never like to dig or coulter up the clay. From 75 to 100 lbs. of some good tobacco fertilizer should be applied to each 100 square yards, and be well raked in before seeding. About the 1st March, I cover the bed with a canvas, which costs from 2 to 4 cents per yard, the thicker in reason the better for the plants. When the plants get large enough to set out, I take off the canvas, say about four days before drawing them. This will toughen them, so that they will stand the sun better. If I think my plants have been killed, I re-sow about the last of March. If the first sowing has not been killed, the last sowing will not be in the way, as the early sown plants will get such a start that they will keep the young plants back.

See to it that you place your orders for seeds and fertilizers as early as possible, so that you may have them on hand when wanted. When ordered late, farmers often have to wait for delivery, and may thus miss the best opportunity for planting. Buy the best seeds and the highest grade fertilizers. The cost of these is little more than that of poorer goods, and bears but a slight relation to the ultimate value of the crop raised, whilst poor seeds and poor fertilizers often mean no crop at all, and hence an absolute loss of the money spent and labor expended. It is well to test all seeds bought before sowing for the crop. This is easily done by spreading a number of seeds on a piece of damp flannel, and keeping same moist in a warm place for a few days. It will soon be seen what proportion of the seeds germinate, and this should guide in seeding the whole crop.

CORN-GROWING IN FLUVANNA CO., VA.

Editor Southern Planter:

For several years past I have reported to the *Planter* crops of corn I have grown on rich river land. I shall now tell you of my success last season on land known in this section to be "poor, worn out soil." While the results will not be so phenomenal as on the one acre reported in your December issue, yet I must confess that I am as well pleased with the general result on the twenty-one acres adjoining to and cultivated with the one acre. All of the twenty-two acres, as

the result of neglect and improper cultivation under the tenant system, was abandoned as worthless nearly twenty years ago, and had become overgrown with old-field pines and other indications of neglect. There was so much to be done in the way of preparation for seeding the corn that it had to be planted in the last week of May and the first week in June. This proved too late for a fair and good return from the soil. Despite this hindrance, however, I harvested from the twenty-two acres [sixteen of low land and six of high land], all adjoining, planted and cultivated the same, except that on the high land I planted a one-eared high land corn, 235 barrels, or 1,175 bushels, of corn [shelled]. The rows were less than three feet apart, and the corn left one stalk to the hill, and about fourteen inches apart. All the land was well and thoroughly broken with the three horse plow, and well prepared with the harrow. Most of it planted with a planter. The plowing was done late in the spring season, when it should have been done early in the fall season, and was planted six weeks later than it should have been done to have attained best results. The early frost in September came upon the Prolific corn unmatured, in consequence of which I lost about sixty or seventy barrels, or at least rendered it unmerchantable. I am sure all corn should be planted in this section of Virginia from the first to the fifteenth of April.

One acre of these twenty-two, as I have before reported, yielded 36⅔ barrels [182 bushels], another yielded 17⅔ [88 bushels], another yielded 17½ [87 bushels]. The twenty-two acres, high and low land, made an average of nearly eleven barrels [55 bushels per acre].

I will call your attention to what you have so often said in the *Planter*, that the South is a great corn producing section. I have before me *The Farmer's Voice*, an agricultural journal published in Chicago, in which I see that at the Peoria Corn Carnival premiums were given to farmers from many counties of that alluvial prairie land, the great corn-producing Illinois, for having made 55 bushels of corn per acre. There are thousands of acres of land in Virginia and other Southern States, which will produce as much, and more, if they have the same care and attention given them. I notice all of these Illinois farmers, in giving their methods of cultivation, emphasize the thorough preparation of the soil before planting, and recommend *early fall plowing*. When our people of the South re turned to their wasted and desolate homes, after the four years of arduous struggle for supremacy between the States, dire necessity compelled them to make all they could out of the land; and it is a matter of sur prise and wonderment that it should be in as good condition as it is; but now a reaction has taken the place of our once unfortunate surroundings, and our people have become awakened to the importance of more intensive and thorough cultivation of the soil, and the good results are very apparent. Some of the best yields of wheat per acre made in our poor Persimmon county last season were made on what has heretofore been considered our poorest and most undesirable land. They were small areas, and well and thoroughly prepared. We are often staggered and amazed, after living fifty or sixty years, to ascertain how little we do know about things of vital importance to us. I was fifty years old before I knew a corn plant could be successfully cultivated by shallow and level cultivation, and you, through the columns of the *Planter*, gave the information. Thanks to you for it. Our Solons should be congratulated on the appropriation recently made for our Agricultural Department, a tax of fifteen cents per ton on fertilizers. While the revenue accruing from this legislation is a mere pittance, yet there has been so little done for this department heretofore we should feel thankful and encouraged. Some may argue that such legislation will produce an upward tendency in the price of the commodity. Fertilizers advanced from $2.00 to $2 50 per ton before the passage of the bill. To admit that the prices would be a trifle higher, so long as our Agricultural Department has been benefitted, we farmers should be willing to await the result for two more years.

Our Agricultural Department has been of little value to our great and grand old State for want of funds, and appropri itions to aid our worthy and well qualified Commissioners in developing her agricultural and mineral resources. No State ever had a better qualified Commissioner, from both practical and educational standpoints, than Col. Randolph Harrison. I speak of him particularly, because I know him well, yet he could not accomplish anything for want of proper support from the State. No one questions the fitness of Mr. Koiner for the position of Commissioner, but he cannot make bricks without straw.

In speaking of the undeveloped resources of our State, I will call your attention to two in my immediate neighborhood—the slate quarries of Buckingham county, and the Hughes gold mine of this county. The slate quarry has been operated for several years by a Welsh colony under the management and ownership of Messrs. J. R. and Evan Williams. The supply is supposed to be inexhaustible and of most superior quality, none equal to it, unless perhaps the slate of Wales. The superior quality of this slate is as well known in European countries as on this continent. Twenty years ago, persons living within fifteen miles of the Buckingham slate deposit did not know of it. For ages, the Hughes gold mine of this county was known only by its name. About two years ago, Mr.

W. P. Bigbee, of Chicago, began making developments. There are to-day thousands of dollars' worth of rich gold ore mined ready for the crucibles. So much for advertising and making known the undeveloped resources of our State.

Let us come together and help our worthy and well qualified Commissioner in the great work before him, the development of our State's resources.

Fluvanna Co., Va. H. E. WOOD.

SOY BEAN.

Editor Southern Planter:

You do well to advocate so urgently the growing of the soy bean. This plant is destined to play an important part in our husbandry, as our animal industries become more extensive. The sooner every farmer, large or small, learns the high value of soy for hay, for soiling, for ensiloing and for seed, the sooner he will land on a sound economic basis. It is admirably adapted to our soil and climate; it is easy to produce; it is more sure of a profitable return under adverse circumstances than any other plant, unless it possibly be sorghum, and, as a kind Providence would have it, the one of these rustlers is the exact complement of the other. One could carry on an extensive live stock industry indefinitely and successfully with no other than these two plants on the face of the earth; and it produces more than double the protein per acre than any other known plant.

We must have more protein, and we must produce it on our own farms and at the lowest possible cost. We cannot afford to buy the generally adulterated by products of flouring mills and oil factories at present prices. Even if we could get animals to overcome their disgust, they are too low in protein to give them much value as a balancing ration. The larger portion of ship-stuff and middlings offered for sale, judging from my experience in Richmond markets, is poorer in albuminoids than any good, home ground corn meal, which can be had at present for $7.00 less per ton.

The statements brought out in your copy of the report of the Kansas Experiment Station experiments with soy bean on a large scale, are rather startling to a man in Southside Virginia—even to an "old field" farmer. I gain from that report (*Planter* for November) that the Kansas yield was 15½ bushels per acre; total cost per bushel, 55 cents; cost of harvesting, $1.40 per acre; cost of threshing, $16\frac{6}{10}$ cents per bushel. Immediately on reading the report, I went out to see if I could find anything standing in the field so late in the season on which I could experiment with a one-negro power as against all that Kansas machinery and perhaps a brass band. There happened to be just one-half acre of the medium yellow variety standing with leaves mostly shed. I gave one of the negroes a bush scythe and fork and told him to put the whole piece into small shocks, which could be lifted conveniently at one forkful when dry. He finished his job in little less than five hours. He was receiving at the rate of 35 cents a day. So it cost me that much to harvest an acre. I then tried the expense of threshing. I had an old negro on the place who was receiving at the rate of 3 cents an hour. He was in the habit of hauling the beans into the hog corral every day and distributing a small one horse load among the various pens of pigs. I told him to bring in a heaping load of dry beans and beat them out on the wagon with a green stick, beating the top layer and then throwing it off to the hogs, layer after layer, to the finish. This method was used to prevent waste from scattering and to feed the hogs at the same time. There remained in the bottom of the wagon three pecks of seed. He was just one hour on his job. So it cost me 4 cents a bushel to thresh and feed the hogs at the same time. The yield was just 30 bushels per acre, as I had previously determined by accurate measurement and weight of product of one square rod (11¼ lbs.) This yield was three times greater than that from black cow-peas under exactly the same conditions. Both were second crops—*i. e.*, both were drilled between early cabbage rows late in June. The entire cost of my soy beans was 10 cents per bushel. If they had been grown as a first crop, necessitating the charge of plowing and harrowing, they would have cost 18 cents per bushel.

The land on which these beans grew was a stiff red clay which had been moderately manured with coarse stable manure three years ago. The first crop after manure was pumpkins; the second year early cabbage and cow-peas as second crop, without further fertilizers; the present crops, cabbage and soy beans, as stated, also without further fertilizing. Oh, these "poor, worn out lands" of Virginia!

We had better drop the term "soja" bean; it is a misnomer.

Charlotte Co., Va. O. C. WIGGIN.

SOME FARM NOTES.

Editor Southern Planter:

In a general way it may be said that the three prime factors in raising large crops are cultivation, rotation and fertilization. Every farmer understands the importance of thorough soil culture. When land is well broken and finely pulverized, the soil water moves about more readily and the plants are not so apt to suffer from drought, the air is also permitted to permeate the particles and bring about certain beneficial

chemical changes. The roots of a plant, in a nicely prepared soil, can forage about for food, and the more accessible the latter is the more readily the crops develop. Good clean cultivation also does away with the growth of weeds. These, if allowed to thrive, would rob the plants of nourishment which rightfully belongs to them. Without good cultivation no amount of fertilizing or other care of farmers can produce a bountiful crop.

Rotation is simply a common sense practice through which a farmer, by selecting a series of crops which fit in well after each other, gives his land a rest and avoids heavy drainage of plant food. Rotations differ according to sections and crops cultivated, the aim being of course to choose those which follow each other well and to avoid having two heavy feeders in succession.

The third essential, fertilization, is now much better understood than heretofore. The work of the Experiment Stations, Farmer's Institutes and agricultural papers has diffused knowledge so freely that almost every farmer knows now that the object in fertilizing is to return to the soil the three ingredients—nitrogen, phosphoric acid and potash—which have become too exhausted by continual cropping. It is important to remember, though, that it does not merely suffice to put these three ingredients of plant food in the soil and depend upon Nature to do the rest. Good cultivation and judicious rotation, as already outlined, must go hand in hand with proper fertilization.

By proper fertilization is meant the use of the right forms of plant food at the right time. It is well to say right here that the forms of plant food exert a great influence on both quality and quantity. It is a well known fact, for example, that stable manure, when used as a source of nitrogen for tobacco, will produce a thick leaf of poor burning quality and inferior flavor, whereas nitrate of soda, which is a cheap and readily available source of nitrogen, will give a weed of great excellence. Nitrate of soda has the advantage also of being a concentrated food, averaging about 16 per cent. of nitrogen; hence, there is a saving both in hauling and applying. One hundred pounds of nitrate of soda contain as much nitrogen as a half ton of stable manure, and it is in a more soluble and available form. Another strong point in favor of nitrate of soda is, that it acts very quickly, can therefore be applied at a time when needed, and in just such proportions as will be both economical and profitable.

In applying plant food it must be remembered that all three ingredients—nitrogen, phosphoric acid and potash—are needed. Neither one can take the place of the other, nor can an excess of one make up for a lack of a second. The best plan is to see that enough of each is supplied.

Now as to applying. The main object of course is to give crops their food so they can take it up with the greatest facility. Experience has shown that phosphoric acid and potash should be used some weeks before sowing time and be worked into the soil, so as to allow time for dissolution and dissemination. Nitrate of soda gives best results when used as a top-dressing after planting. There need not be any waste in using nitrate; an average dose of say, 225 pounds, which is about right for grasses and grains, might be divided into three parts, one third being top-dressed just after seeding, and the other two portions at intervals of three or four weeks. The distribution can be made more uniform if the material be mixed with several times its bulk of earth.

The observance of such points as have been noted in this sketch is what often regulates the margin of profit on the farm.

P. J. CHRISTIAN.

THE CORN CROP.

Editor Southern Planter:

Indian corn is more distinctly the American crop than any other product of our soil. It is grown over larger areas, more generally distributed, and yields a larger aggregate money return than any other crop of the Western World, and has therefore well won the claim of being our king of crops It would therefore seem that a matter apparently so simple as the raising of corn would require no special skill for its successful culture.

A little investigation, however, will show that where actual achievement is compared with recognized possibility, no crop is really grown with so little success. The late census returns show that there are States in which the acreage and consumption of corn warrant the appellation of "corn States," yet they produce an average of less than 10 bushels per acre, while the highest return for any State is 31 bushels per acre. Now, every practical farmer knows that with proper attention, 50 bushels per acre is an easily attained return on any fair soil. No good and sufficient reason can be assigned why said condition should exist. Careful observation of the methods of culture in use among the growers of corn in all parts of the country lead to the conclusion, however, that errors of practice in the method of planting and cultivating the crop are, to a greater extent, responsible for the results cited than all other causes combined.

The first step necessary to be taken for a general improvement of the crop is a thorough preparation of the ground. The root system of the plant furnishes the key to the proper practice. Corn, though not a true tap root feeder, is essentially a deep feeder.

Prof. Mapes is said to have traced corn roots to the depth of five feet, yet a very large proportion of the corn area of the country is plowed and worked in a way that would be suitable only for a shallow surface feeding crop. Success imperatively requires that the ground be thoroughly broken, and if there be an impervious subsoil within ten inches of the surface, a subsoil plow or a long narrow "scooter" should be used, not to turn the surface up, but to break it and render it pervious to water and roots. The next error lies in the fact that on most farms an insufficient number of stalks are grown to make the desired yield possible. More corn should be planted. Where cheap cultivation is an object, check-sowing, or planting in squares, is the most successful way of accomplishing said purpose. A machine for the purpose is of course the best means, but in case of its absence, the land can be furrowed in one direction and then marked across with a marking plow, or scooter, with the same distances, four to five feet, and the corn dropped, four or five kernels, in the hills at the intersections. The result is more stalks and the possibility of working the soil in both directions, thus to a great extent eliminating hand labor, and largely improving the chances for an increased yield. When thus planted, the corn should not be bunched in the hills, but have intervening spaces of about six inches. The corn may finally be thinned to a stand of from three to four stalks, according to the fertility of the soil.

The method of working now demands consideration, and is of vital importance. Deep preparation was insisted upon. Shallow after-working is of even greater importance. The harrow system must be insisted upon. For this purpose, the smoothing harrow for the first two or three cultivations and afterwards the fine-toothed horse cultivator are the ideal implements. In the event of their absence, the narrow scooter with a 20-inch scrape, if held shallow, will answer the purpose measurably well. The reason for the necessity for this method of culture lies in the fact that the enormous expanse of leaf of the corn plant, with corresponding evaporating surface, demands astonishing supplies of water, which must all be pumped up from the soil by the roots. Shallow cultivation, constant stirring of the surface to a depth of from two to four inches, conserves this supply, and in dry weather prevents suffering. The continued growth thus assured secures yields not otherwise to be expected.

Since plants consume food only in solution, the greater the supply of moisture, up to the limit of use by the crop, the greater is the quantity of food consumed, and the development is proportionate. The greater the dryness of the season the more cause for adhering to this practice, and the greater will be the comparative success.

It is understood, of course, that the soil thus treated must contain a sufficiency each of phosphoric acid, potash and nitrogen, or all methods of cultivation must fail. Each farmer will have to govern himself as to fertilization by his own practical experience as to the natural fertility of his land; hence no specific rules can be given as to the quantity and quality of the fertilizer to be used. It may, however, in a general way, be stated that an average corn fertilizer should contain about 6 per cent. phosphoric acid, 5 per cent. potash, and 2 per cent. nitrogen—of which from 400 to 800 lbs. per acre would be a fair application.

BRYAN TYSON.

Moore County, N. C.

THE RICE INDUSTRY.

Editor Southern Planter:

The people of the United States consume over 300,000,000 lbs. of rice every year, less than one-half of which is grown in our country. This cereal forms the principal food of one-half the population of the world. It is used as a substitute for potatoes, made into flour, forms a dainty dessert, and is a valuable nourishing food product. Good rice soil produces from 30 to 50 bushels per acre. A bushel weighs 45 lbs., and the general market price—$1 to $2 per bushel—gives a fair income from an acre. Add this to the by products—straw, hulls and broken grain—and the profits are large. The Louisiana Experiment Station reports rice polish worth $21.50 per ton, rice bran, $20.80, rice straw, $9.13, and rice hulls, $8.34 per ton. From these figures it would appear that the industry is a profitable one that should no longer be neglected, when such a large area may be cultivated.

Rice can be grown successfully in moist climates, where water can be had for irrigation. The Department of Agriculture reports that the plant can be grown anywhere south of the Ohio river, if suitable soil and climatic conditions prevail. The estimated area now subject to irrigation for rice culture is given at 3,000 000 acres, extending over several Southern States. The crop is, at present, almost entirely grown in North and South Carolina, Georgia and Louisiana. All the Atlantic and Gulf States have large areas that may be used profitably in rice fields. As the demand for rice increases every year, it is but reasonable to suppose that the acreage devoted to this crop will soon be doubled. The Chinese authorities give 1,400 varieties of rice, of which the irrigated kinds are the best. They have tried upland rice with very unsatisfactory results, still it is recommended for sub irrigated land.

A low muck soil is best adapted to rice culture. The land should be thoroughly prepared for drainage and irrigation before planting. After being plowed

and harrowed, it is sown broadcast, at the rate of one and one half to two bushels per acre.

March and April are favorite times for planting. The gold seed and white varieties are considered most profitable.

The use of the proper forms and proportions of phosphoric acid, nitrogen and potash is as necessary on rice as any other crop. It is difficult to prescribe a formula that will suit all soils, though in a general way, it may be said that a fertilizer containing about 6 per cent. each of phosphoric acid and potash and 3 per cent. nitrogen, is well suited to rice; 450 lbs. per acre is a fair application. Another good mixture for rice would be about 300 lbs. acid phosphate, 300 lbs kainit and 200 lbs. cotton seed meal per acre. It is a good plan to apply the fertilizer before sowing time and work well into the soil.

When the plants are six inches high the first irrigation is given, by allowing the water to partly cover the plants. Some growers wait until the plants are about one foot high before putting on the water, and then keep the ground covered, taking care, however, to draw off the old water occasionally, to prevent spoiling the crop. Canals are the best methods of supplying water for rice fields. These may be filled by gravity flow from the creeks or rivers, or the water lifted from wells by wind mills or other power. When the grain is in the dough the water should be drawn off and the fields left to dry while the seed ripens.

Cutting should be done while the straw is green, as it gives better seed and more valuable straw for feeding purposes.

Harvesting may be done by any of the grain machines. The straw should be bound in small bundles and shocked very carefully to insure the shocks standing and keep out the rain and storm.

Thrashing should be done by good machines that do not break too much grain. There are improved machines for milling which may be hauled about from place to place, and used for hulling and cleaning several fields in one neighborhood. The rice must be graded into at least six or eight classes. The prices obtained range from one cent to six cents per pound, depending on the grading. American grown rice, when properly slacked, always takes the lead in the markets. It is important that growers prepare it for the market so that there be no red rice, chalky or sun cracked grains. If farmers residing in the rice growing belt will investigate this crop, they will find it offers an excellent opportunity for profits on land, much of which has heretofore been considered worthless.

JOEL SHOMAKER.

Mention the *Planter* when you write to advertisers.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Fertilizer for Peanuts.

I have read with much interest your articles in the *Planter*, and especially those on fertilizers, and would be very glad if you would give me a little information on fertilizer for peanuts.

It is, and has been for years, the practice of farmers in this section to use a fertilizer containing a high percentage of nitrogen.

I believe the vines of peanuts are closely akin to clover, inasmuch as they have the little nodules on the roots like clover, and I think the feeding qualities similar to clover. I think they gather their nitrogen from the air, and if so, I think the expense of nitrogen in a commercial fertilizer unnecessary. I do not know anything about the analyses of the peanut vines, and would like your opinion as to the correct thing to use in a fertilizer for this crop. I shall experiment this year with phosphoric acid and kainit, and shall also try wood ashes. If the acid and kainit is sufficient, it will be a great saving in the fertilizer bills.

Prince George Co., Va. A. N. COCKS.

If the land is well supplied with humus from a previous cultivation of clover or cow-peas, there will be no need for nitrogen on the peanuts, if a heavy dose of phosphate and potash is applied. Peanuts need lime in some form, and my experiments seemed to indicate that the lime that forms 40 per cent. of the acid phosphate is as good as any. The peanut is a legume, and can gather nitrogen from the air. There is an unreasonable prejudice among some peanut-growers against the cow-pea, as they say peanuts will not grow well after them. Somebody years back, we suppose, had a poor crop of peanuts after peas, and at once the charge was made against the peas. It is true that two leguminous crops should not, as a rule, follow each other. But this fact need not prevent peanut-growers from getting the benefit of the cow-pea if they would adopt a systematic rotation, and bring in a hoed crop between the peas and the peanuts. The chief trouble with all of our Southern farmers is that they do not farm, but merely plant crops. If the peanut farmers farmed well, there would not be the slightest need for their buying a high-grade fertilizer at all. And, in any event, I feel sure that the same amount of money spent in acid phosphate and potash that they now spend in the ammoniated fertilizer would give better results in the crop. Still all the authorities who have written on peanuts advise the use of nitrogenous fertilizers for the crop, though admitting its ability to get it from the air. If the land has not been treated so as

to store up nitrogen forming organic matter, it may be best at first to use some nitrogen. One of the best formulas is acid phosphate 100 lbs., cotton seed meal 200 lbs., and muriate of potash 75 lbs., for one acre. It depends more on the condition of the land than anything else as to what is needed, and it should be easy to get the soil into condition that would not need artificial nitrogen. The Department of Agriculture at Washington has issued a Bulletin, No. 25, on the Culture of Peanuts, which is sent free on application to the Secretary of Agriculture. As the crop is treated, it is an exhaustive one to the soil, but treated as a soil improver, the peanut would do as much good as clover. But, like other legumes, it draws heavily on the mineral elements in the soil, and all being removed, root and branch, the soil loses of course. If fed on the land to hogs, and the refuse buried in the soil, the peanut would rapidly help the land.

W. F. MASSEY.

Poor Stand of Clover—Relative Value of Orchard Grass and Timothy as Hay Grasses.

My clover sown last spring on wheat died on some portions of the field, owing, I think, to being smothered by a weed called here the "Magothy Bay Bean."

1. Would it be advisable to harrow and re seed these places this spring?

2. Is this Magothy Bay Bean a desirable weed! Some say that it is a great soil improver. I have orchard grass four years old, clover two, and clover sown last spring; also land to go in corn on which peas were grown and cut for hay this summer.

3. Where and when would you advise spreading manure made this winter?

4. Can as good hay be made from orchard grass as from timothy? Which will yield the most on medium land?

Essex Co., Va. C. C. WARNER.

1. Do not think it will pay to patch the clover. The weed will probably be there again.

2. Never heard of any plant called Magothy Bay Bean. I suppose it may be one of the vetches. Send me some of it when in bloom so that I can identify it.

3. The place for the manure is on the sod you intend to plow for corn this spring. Get it there as fast as made and spread it.

4. Orchard grass will make far better hay than timothy, if cut at the right time. But there comes the the rub. There is only a brief period in which the orchard grass is in good condition, and a man with a large field of it has to hustle if he saves it right, for it comes at the most "catching" season of the year, when we are apt to have showers at any time. The only time to cut orchard grass is just when the heads are out and before it is in full bloom. If allowed to go much beyond this stage, it gets very worthless and is soon little better than wheat straw. Cut at the right stage, it makes excellent hay and is very easily cured, but it never makes the weight per acre that one would expect on seeing the height of the grass, for its habit of getting into tussocks will always make it thinner on the ground than timothy. But it can be grown on land that will not make a good crop of timothy, and it mixes better with red clover than timothy does, for the clover and the orchard grass will come in together, while the clover is pretty well worthless by the time the timothy is ready to cut. Tall meadow fescue and oats grass make a good mixture with it. Timothy on land that suits it will make a far heavier crop than orchard grass, but orchard grass will make a fair crop on land that would hardly grow any timothy.

W. F. MASSEY.

Relative Value of Cotton Seed, Tobacco Stems, and Farmyard Manure, as Immediate Improvers of Land—Barren Scuppernong Vine—Renovating a Vineyard.

1. I can buy cotton seed (whole) at 15 cents per bushel; tobacco stems at $2 per ton; stable manure, with some litter in it, at $1 to $1.25 per two-horse load. which would you advise me to use for fertilizing a sandy soil on which I intend growing vegetables and field corn, and which as a general improver of the land.

2. I have a large Scuppernong grape vine, which blooms well, but when the grapes get as large as good-sized shot they fall off. Please suggest a remedy.

3. I also have a vineyard of about two acres. The vines are old, and look scrubby. It has not been cultivated for some time. I think of planting or sowing it in peas. Please advise me through *The Southern Planter*.

Durham Co., N. C. T. T. FRAZIER.

1. For immediate effect, the stable manure will be best. If the cotton seed and tobacco-stems are composted with woods earth and rotted for a year, turning them occasionally, you will have a good manure at a moderate cost. Use for immediate effect stable manure, supplemented with some acid phosphate and potash, and do not be afraid to pile on the manure and fertilizers, for in no other way can remunerative crops of vegetables be produced.

2. Your Scuppernong vine may be a barren staminate flowered plant. If so, dig it up and throw it away and plant one from a layer of a fruitful vine. From what you say, I judge this to be the case, and there is nothing that will change its nature. It is probably a seedling vine.

3. The old vines will hardly be helped by the peas, but rather the reverse, as the peas sown early will rob them of moisture. If you will plow the vineyard, and cultivate well till July, it may be a good thing to sow it in peas then and turn them under the following spring. Clean and prune the vines at once. If it

were mine, I would grub out the old vines and plant a new vineyard somewhere else. You can get a new one into shape as easily and quickly as you can renovate the old ones. W. F. MASSEY.

Bermuda Grass--Forest Lands.

Will you give an opinion through *The Southern Planter* on the question whether Bermuda grass would make a success for pasturage on the rough Smoky Mountains of East Tennessee, at elevations of from 1,500 to 5,000 feet? These mountains are about to be stripped of their timber, and I have thought that much of the ground might be utilized in grass and fruit trees. At places the ground is very rich and would grow the general grasses, but I fear that in a few years broomsedge would take possession and destroy the pasturage Sedge once established would be almost impossible of eradication, the ground being too steep and rough for plowing. The main object in using Bermuda grass would be to prevent the sedge occupying the land, and also the second growth of timber. Bermuda succeeds here at an elevation of 1,000 feet.

Blount Co., Tenn. FOSTER CLARKE.

These steep mountain lands should never be stripped of forest growth. The best possible use for them is to re afforest them. It would be easy to get a renewed natural growth from seed trees left, and the clearing of such lands is a serious menace to all the country below, for forests are needed on the mountains to check the torrential flow of the water and the flooding of the rivers below. It is not a mere local question for the owners of the mountain lands, but is a matter that affects whole communities below them on the rivers that flow from the hills. So far as Bermuda grass is concerned I do not think that it would be available if the land is to be put into orchards, as Bermuda is a sun-loving grass and will not thrive in shade at all. The best grass for the mountain lands is the so called English or Virginia Blue grass (*Poa compressa*). This will bind the land about as well as Bermuda, and will make fine pasturage, and will grow in shade. It is to be hoped that a large part of that mountain land in this State and in Tennessee will get into the hands of the general government for a forest park, and that the wholesale destruction of the forests will be replaced by a rational forestry that will use the timber in such a way as to produce revenue and at the same time make the forest perpetual. The stripping of these mountains of their forest cover will be a calamity to both States.

W. F. MASSEY.

The Peanut Crop.

Dear Sir: Will you or Prof. Massey give some information regarding ground peas. Everybody allows that the cow pea is a great renovator of worn out soils, chiefly by attracting nitrogen and storing it in the soil. This is done, we are told, by nodules or warts in the roots. Now, these same nodules are always present on ground peas wherever they make a luxuriant growth, and yet in this section we know that peanuts run down land very fast. What is the reason? Is it becaus· there is no stubble left and the land is perfectly bare all winter, or is there some other reason? I can see no reason why the ground pea should not be as good for renovating worn-out land as the cow pea, or even better, as one acre of peanuts will produce more pork than three acres of cow-peas, the hogs to do the harvesting; and even if dug by hand and marketed, the vines are equally as good for cattle, if not for horses, as cow-pea vines. Horses thrive well on them, if sound, and fed other fodder at least one meal a day; but as a rule they are too dusty for horses. Now, Mr. Editor, tell us why the one enriches the soil and the other impoverishes it, or if either happens, is it our bungling farming that makes it so?

Greenesville Co., Va. K. H. T.

The peanut is a legume, and there is plenty of evidence that it gathers nitrogen as other legumes do. This nitrogen is mainly stored in the form of organic matter in the roots, and in fact in all parts of the plant and to a lesser extent in the soil itself, but being in the form of a nitrate it is easily washed from the soil if not at once taken up by plants. Now, in order to do this nitrogen collecting, there must be a good growth of the peanut plant, and like all other legumes the peanut draws heavily on the mineral matters in the soil—lime, potash and phosphoric acid. It is easy to see, then, that if such a crop is removed root and branch from the soil, that the soil is much poorer in mineral matters, and has lost all or nearly all the nitrogen the plant gathered from the air. I know of no class of plants better able to run down land than the legumes if they are all taken out of the soil and nothing returned. The cow-pea is not treated in that way, and the peanut is the only crop that is treated thus. If peanuts are grown and hogged down on the land I am of opinion that you will not see such rapid falling off, if any, but I cannot imagine anything better fitted to make land poor than the peanut crop taken entirely out of the soil, and sold to a large extent from the land.

W. F. MASSEY.

Cotton Rust or Red Mite, Which?—Wet Land Suitable for Bermuda Grass.

Please be kind enough to answer the following questions in next issue of the *Southern Planter:*

1st. In answer to a North Carolina subscriber in the January number, in regard to rust in cotton, you say that if it is real rust and not the red mite, probably kainit will cure the tendency. I am troubled with what I thought to be rust, and kainit does not check it for me. As I am in the eastern part of the State, and you say most of the specimens sent you from this section are not rust, but the red mite, probably that is the trouble with me. You mention no remedy to check it. Is there none?

2d. I have been using a fertilizer, the analysis of

which is 2-8-2, and have come to the conclusion that it is the cause of my cotton rusting. I think that it has too much acid in it, causing the cotton to die sooner than it would. Am I right?

3d. Would not more ammonia and potash and less phosphoric acid keep the crops green longer and cause it to mature the bolls better at the top, instead of all dropping off? I believe that phosphoric acid has a tendency to cause a prolificacy of bolls, but at the same time dwarfs them to such an extent that you lose instead of gain. Am I right?

4th. I have a low piece of land in the shape of a basin, and it is impossible to ditch it so that the water will go off fast enough to keep it from sobbing in a very wet time, while in a very dry time it becomes a fine dust. It has a dark soil, to the depth of twelve or eighteen inches, underlaid with quicksand. It is not springy, as a three foot ditch never has water in it except in wet times. Do you think Bermuda grass would do well in it; if not, would you suggest some other grass that would, if any? E. W. FARNELL.

Onslow Co., N. C.

1. It would be impossible for me to predict what the rust you have is without having specimens of the affected plants. Few of the manufactured fertilizers are properly compounded for the lands of Eastern North Carolina especially. Intelligent growers in Edgecombe county tell me that they find no result now from the use of acid phosphate. The fact is, probably, that they have been long using fertilizers containing a larger percentage of phosphoric acid than anything else, and as this rarely is lost from the land, except through the roots of crops, there may have been an accumulation in their soil. But all agree that a larger percentage of potash is needed for their soils than the manufactured fertilizers contain. The clay soils of the upper country are of a different nature, and are more deficient in phosphoric acid than in potash. Whether more ammonia, or, rather, nitrogen, is needed, will depend on the character of your soil. In some soils, it would be advisable to increase the percentage of nitrogen, while in others, such an increase would result in a weedy growth and long limbed plants. Phosphoric acid in excess of the other constituents, may have the effect you name, but I would always include a due proportion of it in a complete fertilizer for cotton.

Bermuda grass would do excellently in the basin you name. I know of just such a place on a South Carolina farm that has as fine a sod of Bermuda as I ever saw anywhere, and though there is an underdrain through the rim that carries the water off generally, it sometimes gets full of water for a few days after a heavy rain. But the grass does not seem to suffer from it.

For cotton on sandy land, I would suggest a fertilizer containing 3 per cent. ammonia, 7 per cent. phosphoric acid, and 4 per cent. potash.

W. F. MASSEY.

Musk Melons--Lime--Tobacco Dust

I am a subscriber to the *Southern Planter*. I wish you would answer the following questions. I generally grow 35 to 40 acres of musk melons for Chicago market every year. I have not used any fertilizers here yet. I am thinking of trying it on musk melons. I use manure a shovelful to a hill, and always on pea ground that has been pastured or mowed for hay. I suppose I would need potash and phosphoric acid more than nitrogen.

Please give me all the information you can. I threshed cow peas here this year; some blacks and a blue pea I got in South East Missouri. There were more peas sowed this last year than ever before. I was the first one to grow them here, and it was through your advice that I was induced to sow them. People here don't know how they could do without them now.

1. How much potash, phosphoric acid and nitrogen does an average crop take out of the soil?

2. On pea ground how much potash and phosphoric acid will I need to apply to make it equal to manure spread over the ground, and do you scatter it to get it evenly spread?

3. How much lime do you spread on an acre. Is 18 cents per bushel too high a price to give to apply it on my land. My land is sandy?

4. What are the manurial constituents of tobacco dust—mostly fine leaf dust?

Madison Co., Ill. G. B. H.

I am glad to know that I have been instrumental in getting you and your neighbors to use the cow pea, and know that from your part of Illinois southward they will be in the near future a prominent crop for hay, for I have many favorable accounts from there, and even in that part of the State north of St. Louis.

1. I hardly comprehend the meaning of your first question. If you mean how much of these forms of plant food the melon crop removes from the land, I have to say that I cannot tell and know of no analyses that show it.

2. After a crop of peas, I would only use a little fertilizer in the hill to give the vines an early start, and would use stable manure in the hills, well mixed in the soil about a good forkfull to the hill. Sprinkle a little complete fertilizer on this and cover with earth before planting the seed.

3. On land well supplied with humus or vegetable matter I would use 30 bushels of freshly water slaked lime per acre. The price you name is pretty strong, but not prohibitive for lump lime.

4. Tobacco dust will vary greatly, and it is not possible to give an exact analysis, as it may have varying degrees of dirt and foreign substances in it. Tobacco stems have 2.35 per cent. of nitrogen, 8.20 per cent. of potash, and 0.70 per cent. of phosphoric acid. Of course none of these are immediately available and become soluble only after complete decay and nitrification in the soil.

W. F. MASSEY.

Cow-Peas in Corn.

I am thoroughly interested in your articles on cow-peas and other leguminous crops. I have 125 acres sandy loam river bottom, which overflows annually, leaving more or less sediment, but it has been growing corn steadily for years, and there is a deficiency of vegetable matter. The land is good enough to grow 40 to 50 bushels corn per acre. Can I grow cow peas among the corn, and successfully, and turn them under the following spring? Would like to hear from you also whether the cow pea is the proper plant. Crimson clover is a failure with me this year.

Muskingum Co., O. J. B. FORD.

I am not at all sure that the cow pea will do much for you in corn so far north. Then, too, you plant corn closer than it is planted in the South, where the practice is common of sowing peas among corn. We have quit it here, because of closer planting and heavier growth of corn. Where the practice is the rule they plant about six feet apart and one stalk in a place, and there is plenty of room for the peas. Better in your latitude sow crimson clover in the corn in July, or even red clover.

W. F. MASSEY.

Cow Sucking Herself—Pruning Fruit Trees—Feed for Milk and Butter—Feed for Eggs—Corn and Cow-Peas—Sweet Potatoes.

Being a subscriber, I feel at liberty to ask a few questions in order to better prepare me for success at my new venture of farming.

1. I have a three-year old Jersey heifer, which has every point of making a very good cow, but she has a very bad habit of sucking herself. Can you give me any advice on the subject, and recommend any means by which I could successfully break her of that habit?

2. Will you tell me the best time and way to cut or prune fruit trees and grape vines. Trees are peach and apple, with a few plums of various kind.

3. What is the best feed to produce milk and butter?

4. What is the best feed to produce eggs?

5. I have a wornout field on which I intend to plant corn and cow-peas. Please tell me the best time to plant the pea and the best way to work and harvest the crop with a view to enrich the land permanently. The land had corn on it last year.

6. Please tell me the best place to plant sweet potatoes, high or low, wet or dry land, and the best kind of potatoes to plant, with the view of marketing and keeping same for winter and home use. And which is the best way to make the bed to secure the plants, and at what time I ought to make the bed.

7. Can you furnish any plans of chicken houses, and horse and cow barns?

Lunenburg Co., Va. GEO. D. BURNHAM.

1. A sucking cow is difficult to break of the habit. She may, however, be prevented from sucking herself, but this prevention will usually have to be continued during the whole time she is in milk. Make a necklace for her of hard wood rods about 15 inches long and an inch in thickness. These rods should be strung on two wires, each about two inches from the ends of the rods, and between each rod a small block of wood, say an inch square, should be strung on the wire so as to hold them apart. Let the wires be long enough to go easily round the neck of the cow. When sufficient rods have been strung on the wires to make the length of necklace sufficient to go round the cow's neck, place it in position there and fasten the ends of the wires together. This will prevent the cow from turning her head sufficiently close to her body to reach her udder and suck the teats, but not in any other way interfere with her freedom of action.

2. The pruning of fruit trees, such as apples, peaches and plums is, unless done by a man with technical knowledge of the habits of growth and fruiting, a work much better let alone than attempted except in a very small way. Confine your pruning to simply cutting out branches which interfere with each other, or which tend to make the head of the tree too close, and thus exclude the sun and air. The object aimed at should be to keep the tree growing in such a form as to admit sun and air into every part of it, so that the fruit grown may be ripened and colored fully and the bearing wood well ripened. Grapes should be pruned by taking out the old wood every year, so far as this can be done without cutting away too many of the new canes on which the fruit is borne, and leaving provision for the growth of the new canes for next year's fruiting. Two or three canes left on each vine, and shortened back to three or four joints each, are as many as should be left to bear fruit.

3. Milk and butter are largely the product of nerve force, and therefore the food needed is such as will produce this rather than fat. Foods, therefore, rich in protein, such as bran, oats, flaxseed meal, cotton-seed meal, and gluten meal, should be fed with a smaller ration of corn meal and as much coarse fodder, such as silage, corn fodder, or clover hay, as the cow will eat. The following will be found a good grain ration for milk and butter: 4 lbs. corn meal, 4 lbs. bran, and 4 lbs. cotton-seed meal or flaxseed meal per day.

4. The food that will best produce eggs is such as will most closely assimilate to what the hens find for themselves on the range in summer. This means that the fowls must have an abundance of green feed, some animal matter, such as green bones and meat-scraps, and some grain feed, preferably wheat, or wheat and oats. Corn is not a good egg-producing food, as it is too fattening.

5. Plow the land as early as possible, and let it lie until the middle of May: then sow the peas and

corn broadcast, and harrow in well. Put one bushel of peas with a peck of corn to the acre, or, what we think is better, as making a nicer feed, use sorghum instead of corn. An application of 300 lbs. of acid phosphate and 50 lbs. of muriate of potash to the acre would help the peas much and enable them to more permanently improve the land. Cut for hay when the first pods are ripe, and leave a long stubble, which plow down to help the following crop by increasing the vegetable matter or humus in the soil.

6. Sweet potatoes should be grown on dry loamy soil. Plant the dry, mealy varieties, like the Yellow Nansemond for sale in Virginia and Northern markets. The markets further South call for the soft, sugary Yams. Make up a hot-bed of leaves and manure in the beginning of April, enclose with plank, and cover with oiled canvas or glass sash. Cover the manure and leaves with four or five inches of good woods mould or rich soil. After the first fiery heat of the bed has gone down a little, say in a week or ten days after being made, spread out the potato sets singly on the soil and cover lightly with good soil. Keep the bed slightly moist, but *not wet*, and the sprouts will not be long before they begin to grow. Harden them by giving air on all fine days, and finally, when the weather has become warm enough, leave uncovered both day and night. The end of May or beginning of June is soon enough to set out sweet potatoes in the field.

7. We can supply a book giving barn plans and plans of other farm buildings. Price, $1.50.—Ed.

Fertilizer for Corn, Oats and Peas—Sorghum for Mules.

1. Please tell me the best thing to mix with good strong wood ashes for fertilizer for corn and oats and peas. I have several tons of strong ashes and want to make my own fertilizers.

2. What do you think of cane or sorghum for fattening young mules, and what kind of seed would you advise planting for this section of country. I have a big lot of mules I want to put on the market next fall, and I want to make them fat.

Wythe Co., Va. M. M. Sutherland.

1. Mix acid phosphate with your wood ashes for the crops you name. Use from 300 to 400 lbs. of the phosphate to twice that quantity of wood ashes, and apply at the rate of 300 or 400 lbs. to the acre.

2. We have never known sorghum to be used for feeding horses or mules, but see no reason why it should not be just about as good for that purpose as green fodder corn. The food value, as shown by analysis, is about the same. The mules should have some grain—oats or corn, or both—fed with the long feed, or they will not improve fast. The Early Amber cane is the best variety to plant.—Ed.

Black Peas and Soja Beans.

Would you recommend me to sow black peas and soja beans together? As sojas stand up, peas might be more conveniently harvested. I need to cut for both hay and grain. I would like to harvest all with binder and thresh in threshing machine. We have no labor to pick peas and beans.

Culpeper Co., Va. L. F. Major.

We would not advise the sowing of soja beans and black peas together, as they do not mature at the same time. Sorghum or a small variety of corn is the best grain to seed with black peas. These seeded together make fine hay of a highly nutritious character, making almost a complete ration. If the peas are desired for the seed only they should be sown alone. There is no difficulty in harvesting them with the mower, and they can be threshed out with a machine, if the concaves are taken out and the machine run slowly so as not to break the peas. Soja beans can also be threshed in the same way. The peas can also be very successfully threshed out by tramping with horses, indeed, one gentleman we know prefers this way to the machine, as fewer peas are broken and a better sample made with less trouble. This gentleman grows a large acreage of black peas every year, and always cut with the mower. He also grows a large quantity of soja beans and cuts them with a mower with a short blade, taking one row at a time.—Ed.

Soja Beans as an Improver of Land--Peanuts,

I planted a patch of soja beans last spring, turned my hogs on them in the fall. If the residue of the crop left by the hogs be turned under, will the land, which is medium light soil, be improved. I examined the soja beans roots to day, and find lots of little sacks full of liquid. What is this? Will it be advisable to plant peanuts on the land this year?

Isle of Wight Co., Va. W. H. Dick.

The land will no doubt be much improved. The sacks on the roots filled with liquid are the nitrogen nodules decaying, and thus giving up their plant food to the soil. A cover crop ought to have been seeded in the fall to conserve this nitrogen, which is easily washed out of the soil in the absence of a crop to utilize it. We do not advise the planting of one leguminous crop to immediately follow another of the same nature. It would be better farming and more likely to result in profit to plant a grain crop after the beans.—Ed.

Tobacco Growing.

I notice in your editorial of January that tobacco growers and curers must avail themselves of the teaching of science and thus be able to make with certainty what the market calls for; and that the tobacco crop is one most exacting in its requirements of technical knowledge, etc.

I would like to know what is meant by this technical knowledge. Will you please give method of cul-

tivating, curing, etc., how much commercial fertilizer to acre, and if bone meal is good for tobacco, and if upland lying northeast and southwest, with sandy soil and red subsoil, is good for growing the right kind of tobacco.

Please give method of handling tobacco after being cut, etc. Should tobacco be thoroughly ripe before cutting? C. T. WATTS.

Amherst Co., Va.

When we gave the advice referred to, we had in mind the fact that very much of the tobacco put on the market is of a nondescript character, for which there is no demand, and therefore no paying price. This arises largely from growers attempting to grow varieties not suited to the land on which planted, or which, when grown, are not so treated in the process of curing as to result in a type that the market calls for. Technical knowledge is required to correct these mistakes. This technical knowledge can only be acquired by careful study and experimentation with the crop or by availing one's self of the experiments and advice of specialists. So satisfied is Mr. Wilson, the Secretary of Agriculture, of the importance of technical knowledge in the growth and curing of tobacco, that he has detailed several scientific members of his staff to conduct a series of experiments to ascertain definitely the effect of conditions of soil, moisture, climate and methods of fertilizing and curing upon the crop. There are growers and curers of tobacco who always succeed in making a crop which the market wants, whilst there are hundreds of others who fail as often as they succeed in doing so. These men say "luck" has to do with their failures or successes. This is not so to any considerable extent. It is a want of knowledge of the technical requirements for success which those who always succeed observe, whether gathered from study or acquired by practice. In the spring months we shall endeavor to bring before our readers the experience of some of these men and the points to be observed in growing and curing the crop in order to be successful.—ED.

Moles.

Can you suggest any way by which a garden can be gotten rid of *moles*, and oblige,

Prince George Co., Va. E. H. E.

We know of no means of getting rid of moles in a garden except by trapping them. There are a number of traps on the market which, if set in the runs, will not fail to catch. The point is to find the run used by the moles in getting into the garden and there to set the trap. This main run usually leads to some watering place. Except in a garden where they uproot plants, we believe moles are a greater benefit than an injury. They are almost wholly insectiverous in their diet.—ED.

Breed of Cattle for Beefmaking in the South.

I am a young farmer of but a few short years' experience, but I have decided to pull out of the "all cotton" ruts so deeply worn by Southern farmers. I am preparing my lands for pasturage far above the average, with Bermuda grass, grain, peas, etc., and have decided to raise beef cattle and hogs scientifically, and I trust practically and profitably.

And now, having stated my purpose, I want to know what is the best breed of cattle for our hot and at times dry climate. I am rather inclined toward the Angus now, from their Chicago Christmas record, but don't know how they will stand our climate and flies. Have accepted the Berkshire as my ideal hog. Will give you my experience and cure for cows poisoned with sorghum, if you wish it.

T. J. D.

We are glad to know that at last Southern farmers are deciding to get out of the "all cotton rut" and to go into stock raising and feeding. This is the only way to permanent prosperity. As to the breed best suited for the climatic conditions of the cotton sections we hesitate to advise. It must be a breed that does not call for rich grass lands, and yet one that will make good growth on such pastures as we have. We had doubts as to the Aberdeen-Angus being adapted to the South, but our subscriber, Mr. C. E. Jones, of Fluvanna county, Va., who has tried them now for several years, expresses himself so satisfied with them that we do not feel now any hesitation in advising others to try them. Mr. Jones has recently largely increased his herd and will keep no others than pure bred ones. The Herefords also are doing well on the thin lands of Fluvanna county, Va. An article in our November issue from Mr. Andrew Stone fully confirms this, and in this issue will be found another article from him on the same subject. The Red Polls are also doing well in Southern Virginia, and are very desirable cattle. We shall be glad to have your experience with sorghum.—ED.

Subsoiling.

1. Please let me know the effect of subsoiling in low creek or bottom lands.

2. Also, the best pea for hay in this section, and also how early it could be planted. R. B. W.

Loudoun Co., Va.

1. Unless bottom lands are underlaid with a hard pan, which is not often the case, subsoiling is of little benefit to them. These lands are usually made up of deep deposits of alluvial loam, and are generally sufficiently open to permit of good drainage and of permeability by the roots of the crops. If these conditions are absent, then subsoiling will be of service.

2. The black pea is the best pea for hay in your section. Do not sow before May.—ED.

Cocke's Prolific Corn—Grass for Pasture.

The soil of this section of the county is mostly red—that is, the red soil predominates; balance is a white sandy soil, and for the most part contains gravel. Would Cocke's Prolific corn produce well on this soil, which is only a *fair* quality of land? Again, I want to see if I can get a successful and permanent winter pasture. My idea is to take hen manure and unleached wood ashes and drill in a crop of peas in May, let enough of the peas get ripe for my next seed, then either cut the rest for hay or pasture down very close until wheat sowing time, then take a disc harrow, following with a drag harrow, and put the land in good condition, and when I sow wheat to sow orchard or dog foot and timothy, putting on plenty of seed to insure a stand if the weather conditions are favorable. My idea is to keep all stock off during the summer months, not even to put a mower or a scythe in the field, then after other pastures are given out and frosts come, to turn in. How will it do to make a compost of hen manure and the wood ashes during the winter, to let lay until time to sow the peas? An answer will be greatly appreciated. ROSS SMITH.

Washington Co., Tenn.

We doubt very much whether Cocke's Prolific corn will be suitable for your land. It is strictly a rich, river low ground corn, and only does well in any other land when that land has been made rich and the corn has been acclimated to the change. The preparation of the land by a pea crop will be a good one for the wheat and grass but you should apply phosphoric acid in the form of acid phosphate or bone, and potash in the form of muriate of potash or good hard wood ashes to the land previous to sowing the peas. Peas will find their own nitrogen if given plenty of phosphoric acid and potash. These fertilizers will also help the wheat crop and later the grass. Hen manure is mainly a nitrogenous fertilizer, and therefore is not needed on the peas, but would help the wheat and grass. It, however, should not be mixed with wood ashes, as the lime in the ashes will liberate the ammonia. Plaster mixed with the hen manure will fix the ammonia and conserve it for the use of the crop which needs it. Orchard grass is a good pasture grass, but timothy is not. Timothy should never be grazed. It has a bulbous root, which grazing destroys. Tall meadow oat grass and Virginia blue grass or fescue grass would help the orchard grass to make a thicker sod.—ED.

Rotation—Grass for Hay.

We have a three year rotation here—viz.: First year, tobacco; second year, wheat; third year, clover, when we can get a "catch." Nearly all of the labor has left this section, and we cannot get labor to work our crops. I had an idea of changing to a four year shift—viz.: First year, tobacco; second year, wheat; third year, grass and clover cut for hay; fourth year, cut a portion of the *grass* for seed and graze the other lightly. Do you think the land would improve under this system, and what grass would you advise me to sow with the clover on grey soil with red clay subsoil, all rolling land that will produce about 800 lbs. of tobacco per acre? I want only one kind, and that a variety of which I can save my own seed without a machine to thresh, as we have no machinery here for threshing grass seed. I have heard that orchard grass seed can be easily saved; if so, please tell me how to manage it so as to save the seed I propose to buy the *clover* seed, as we have no hullers here. Any information you or any of your readers can give me will be highly appreciated.

Appomattox Co., Va. G.

We have no doubt whatever but that the change to the four years' course suggested will be found a beneficial one. You will get more humus into your soil and thus make it better for all crops. For grass, of which you can save the seed yourself, either orchard grass or tall meadow oat grass, or both, will be found the most suitable. They both mature with the clover, and mixed with it make excellent hay. The grass should be allowed to stand until nearly ripe and then be cut and be saved with as little shaking or working as possible, so as not to shed the seed. See that all weeds are pulled out of the crop before cutting the grass, so as to keep the seed clean. The seed may, after the hay is cured out in the barn, be nearly all shaken out with a fork and the hay be fed to the stock. If it is seen that any considerable part of the seed adheres to the stalk, it may be beaten off with a flail on the barn floor. The seed should be run through a riddle or sieve to take out the broken stalks, and may then be sown. We always saved all the seed we could in this way, and thus largely reduced the quantity we had to buy. Of course more of this seed should be sown to the acre than of finely cleaned seed bought from the seed merchants, as it has a larger proportion of chaff in it.—ED.

Artichokes.

Will you be kind enough to get some of your subscribers who have raised artichokes for hog feed to write their manner of cultivating them. Do you cut them, like Irish potatoes? When are they planted, and which kind is the best? Mr. Massey does not seem to think much of them as a hog feed.

Please reply in February issue.

Hanover Co., Va. B. M. R.

Artichokes should be planted about April in land that has been deeply plowed and harrowed fine. Open furrows about five or six inches deep, three and a half feet apart, and drop the sets eighteen inches apart in the furrows, and cover with the plow. Cut the artichoke sets into pieces with one or two sprouting points on each piece. We are only aware of one variety of tuberous artichoke. There is one grown for a vegeta-

ble, of which the head or flower stalk is the part eaten, but the tuberous one is the variety used for hog feed. When the plants are up nicely, harrow the land both ways, and again when they are nine or ten inches high. This is all the cultivation required. On land which made thirty bushels of corn to the acre they have made over four hundred bushels of tubers. Although Professor Massey has not a high opinion of artichokes as a feed for hogs or cows, yet those who have grown them and fed them speak highly of them. We have one subscriber who has increased his area every year for several years, and finds them of the greatest value both for his milch cows and his hogs. He would not now be without the crop, and feeds large numbers of hogs with them and a little corn every year.—ED.

Seeding Rye in Peas—Winter Pasture.

I have a field of oats which I intend to sow in peas after oats are off. Now, I want to know if I can sow rye among the peas—say, two or three weeks before it is time to cut them, and will the rye sprout without any working in? if not, is there any grain I can use in this section that will give me a cover crop for winter and a grazing pasture for hogs? Kindly advise through your journal, and oblige,

Worth Co., Ga.. J. K. WILLIAMS.

We would not attempt to seed rye in a pea crop, but would cut and cure the peas for hay when the first pods are ripe, or nearly so, and then seed the rye and cut it into the land with a disc or cutaway harrow, or harrow in with a heavy drag harrow. With this seeding of rye we would sow 10 or 12 lbs. of German clover seed to the acre, or half a bushel of sand vetch or a bushel of common vetch, and, to guard against any failure of either of these crops through drouth, would sow 2 or 3 lbs. of turnip seed to the acre. In this way you would almost certainly secure a good pasture for hogs.—ED.

Applying Lime.

Would like to see some articles on the best method of applying lime. For applying 500 lbs. per acre I believe I can use the Champion wheat drill by taking off the hoes and pipes. I want to apply the lime in February on wheat when I harrow in clover seed. It will not do to harrow the wheat that was seeded to grass late in fall. The weather was dry and the grass did not come up until after the rains set in. How will it do to drill lime with oats when seeding in spring?

Caswell Co., N. C. EDWARD RAY.

We have applied large quantities of lime to land in our own practice, and always applied it broadcast in the fall or in winter. We doubt very much the policy of endeavoring to sow it with the drill or in spring when seeding clover. The action of lime is largely mechanical in disintegrating a stiff soil and making more cohesive a light one, and to accomplish these ends it should have plenty of time to become effective before results can be seen. It has of course other action, in that it tends to make available inert plant food in the soil, and corrects acidity, but here again time is required to permit of its action being effective.—ED.

Stacking Pea Vines in the Field.

Is there any way by which pea vines can be stacked or shocked in the open field and preserved with caps, or otherwise, and if so, is that a good way to preserve pea vine hay? About what percentage would be lost by weather beating, and does the hay deteriorate in quality or not? F. T. EDMONDSON.

Memphis, Tenn.

I suppose that if the stack is well made and capped with straw, the hay will keep very well. I would prefer, however, to make the cap very thick. That is, I would make the upper third of the stack hay or straw. The best way will be to make stack covers of a board roof, made in a square pointed shape and of light material, and made to slide up and down on four corner posts, through which holes are bored at intervals in which to insert pins to support the roof. I have made these ten feet square, and they will hold a great deal more hay than any ordinary stack, as the sides are carried up perpendicular on the outside. The roof can be lowered as the hay is used, so as to always have a cover over it. W. F. MASSEY.

A COMPLETE FERTILIZER.

We hear much about a complete fertilizer, the one using that term meaning by it a fertilizer containing all of the three elements usually considered, viz., nitrogen, phosphoric acid and potash. Such use of the word "complete" is very misleading. A complete fertilizer for one soil and crop may contain only phosphoric acid. Only that, in that soil, is in such deficient quantity that an application of it will make any appreciable increase of crop. Where only phosphoric acid is needed, it is a complete fertilizer. This applies to many well-cultivated clay soils. Tillage and sod supply all the nitrogen and potash that can be given the land with profit, while phosphoric acid, in the form of a high-grade soluble rock, is needed. Another soil may find a mixture of phosphoric acid and nitrogen complete for it. Another may need potash. A complete fertilizer for any soil is the one that supplies what is lacking. It is our business to learn what is lacking—something not always easy to do.—*National Stockman.*

Mention the *Planter* to your friends.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

There is little to be done this month in the garden or truck land in the way of planting crops, except in the far South, where the earliest crops of Irish potatoes and English peas may be planted as soon as the land can be got ready. In this State and North Carolina, English peas may be planted in the Tidewater and Eastern sections as soon as the land is ready, and towards the end of the month the early Irish potato crop may be planted. It is only, however, in these sections that we would advise so early setting, and even there we would not plant the full crop until next month. The high price at which the first potatoes on the market sell for, and the fact that in these sections near the sea, and the influence of the Gulf stream, it is unusual to have killing frosts late in spring, make it advisable to run some risk in order to try to be in amongst the first.

English peas should be planted in a good loamy soil, not very rich, but yet not poor, and, like all other legumes, are helped on a poor soil by liberal supplies of phosphoric acid and potash. They should be planted in drills, three feet apart, and the seed should be scattered pretty thickly in the drills, which should be at least six inches wide in the bottom, so as to get a good broad row of plants. The seed should be covered deeply, not less than four or five inches, and be firmed in the soil at the bottom of the drill before being covered. The early smooth varieties should be planted for first crop, and the wrinkled varieties, which are more tender, later.

Small sowings of early salads, such as radishes, lettuce and cress, may be made in sheltered situations, and tall sown lettuce plants, which have been exposed to the weather so as to be hardened, may be set out towards the end of the month.

Spinach and kale may be sown towards the end of the month if the weather be mild and the land dry.

Frames and hot beds should be got ready for raising tomatoes, egg plants, canteloupes and peppers, and cauliflower and cabbage seed may be sown in cold frames, where the plants can be protected during severe weather.

Asparagus beds should be worked over and be covered thickly with well rotted manure, if this has not already been done, and this with five or six inches of good soil. Land should be got ready for the planting of new asparagus beds. In this issue will be found further information on this subject.

Manure should be got out on to land intended to be cropped whenever it is dry enough to haul on. This will save time later in the season. All phosphatic and potassic fertilizers are of greater service to the crops if got on to the land some time before the crop is planted. It requires time for them to become available. There need be no fear of their leaching away. It is a good practice to spread these fertilizers on manure as it is made, or as it is spread on the field, and thus let it become thoroughly mixed into the manure and soil. Farmyard manure is most lacking in phosphates and potash, and can always be usefully supplemented with them, and thus be made to go much further and do more good.

IRISH POTATO GROWING.

Irish potatoes always succeed best on a good, sandy loam soil. If the crop can follow a clover or other leguminous crop, it will be found to be greatly benefited by the vegetable matter and the accumulated nitrogen. Fresh barnyard manure or lime should never be used on this crop, as they have a tendency to induce scab. The following will be found to be a good fertilizer to use:

300 lbs. nitrate of soda.
600 lbs. cotton seed meal.
800 lbs. acid phosphate (14 per cent.).
300 lbs. muriate of potash.

2,000 lbs.

Or the special potato fertilizers, put up by the factories, may be used. Apply at the rate of from 500 to 1,500 pounds to the acre broadcast. If only a small quantity of fertilizer is used, say 300 or 400 pounds to the acre, apply in the rows before planting, mixing the same well with the soil by running a cultivator through the row. Drop the sets fifteen inches apart in the rows, which should be about two feet six inches apart. Cut the sets to two or three eyes. As a preventive of scab, the sets should be dipped in a solution of corrosive sublimate, two ounces to fifteen gallons of water. Dissolve the corrosive sublimate in two gallons of hot water and then mix this with thirteen gallons of water in a wooden tub. The sets should remain in the solution one and a half hours. Keep this solution out of the way of all animals and human beings, as it is deadly poison. All sets dipped should be set as soon as dry. Dip before cutting. A light harrow run over the field just before the plants appear will help them and kill out all germinating weeds.

MAKING AN ASPARAGUS BED.

We are again asked to advise as to the best way of making an asparagus bed. The land best suited for asparagus growing is a light, sandy loam, and the bed should have sufficient slope to afford good drainage. Break the land deeply and work thoroughly. Then lay off straight rows, six feet apart, with a one horse plow, and let these rows run north and south, or as near thereto as possible. Take a two horse plow and throw out these rows both ways as deeply as you can, running two or three times in each row. After this is done use a long-handled shovel and clean out the bottoms of the row, thus getting a depth of fifteen to eighteen inches. Let all the top soil be thrown to one side of the rows, ready to be gradually worked back into it as needed. Scatter the soil from the bottom of the rows, on to the bed between the rows. Fill into the trenches about three or four inches of the best top soil. They are then ready for planting. The plants should never be ordered, if not grown at home, until all is ready for the planting, as they will not bear exposure to the air. Set the plants as soon after being taken from the seed bed as possible, keeping them in a tub of water until planted. Set the plants eighteen inches apart in the rows, taking care to spread out the roots, which cover with the top soil and press firmly with the hands. The cultivation for the first year should be confined to keeping the trenches clean of weeds. In the beginning of the winter following planting, spread good farmyard manure in the trenches on the top of the plants to the depth of three or four inches, covering lightly with soil. The second winter manure heavily with farmyard manure and cover with soil. The trenches will then be filled level. The third year the crop may be cut, and the subsequent cultivation is to yearly rake down the soil from the top of the rows in the fall and cover with farmyard manure, and then in early spring cover with soil to the depth of five or six inches. The old stalks should be cut off after they die in the fall. It is also advisable to take out the seed-bearing stalks every year as soon as they show seed. The plants necessary to set out new beds can, and ought to be, raised at home. A pound of seed, sown in rows on good land, will produce about 3,000 plants.

THE HOME GARDEN.

Before work in the fields becomes pressing, see that the home garden is plowed, harrowed and got ready for planting, and do not be afraid to apply good farm yard manure heavily. It will pay better here than on any crop on the farm, besides making it possible to have a constant supply of vegetables from spring to winter. The value of a good garden is not half appreciated in the South as it should be. Too often a few Irish potatoes, a few beans and a few cabbages is all that is grown, whilst there is scarcely a vegetable known which cannot be grown here to perfection, and with the minimum of care and cost.

VIRGINIA STATE HORTICULTURAL SOCIETY.

The fourth annual meeting of the Virginia State Horticultural Society took place in the Odd Fellows' Hall, Staunton, on January 16th and 17th, under the presidency of Samuel B. Woods, Esq., of Charlottesville. There was a large attendance of representative fruit growers, nurserymen, and others interested in horticulture, from all sections of the State. President Woods made a brief address, stating that since the formation of the Society the zeal and interest had greatly increased, and advocated the education of the farmer in chemistry.

Dr. M. L. McCue (Greenwood, Albemarle county) followed with an interesting paper on "Home Remedies for Common Orchard Pests." Hon. G. E. Murrell, of Bedford county, read a paper on "Cultivation of Hillside Orchards." "Plums, their Culture and and How to Ship Them," was dealt with by Walter Whately, of Crozet, Albemarle county. Professor W. B. Alwood, State Horticulturist, discussed the sections of the State best suited to various varieties of apples. J. S. Phillips (Blacksburg) spoke on "San Jose Scale." H. L. Price (Blacksburg) on "Behavior of Apples." Colonel Watrous, president of the American Pomological Society, and Ex President Silas Wilson (Iowa), of the Nurserymen's Association, gave interesting addresses, and strongly urged the society to memorialize the legislature for a State appropriation, saying that they got such aid in western and other states.

Walter Whately, chairman of the Transportation Committee, in making his report for the year, had to tell the society of satisfactory results in obtaining reductions on rates charged for fruit by express; and in referring to the fact that the railroad companies had refused to abate the tariff charged on apples, showed that rates charged New England, Ohio and Michigan apple shippers were five to ten cents per barrel less than the apple growers in this State had to pay, though, in most cases, nearer the metropolis, and that growers here should agitate to be put on equal terms with these competitors.

Dr. M. B. Waite, Assistant Pathologist of the Department of Agriculture, Washington, displayed stereopticon views, and lectured on diseases of orchard fruits and leaf blight of apple and pear-scab, canker, etc.

The following officers were elected for the ensuing year:

President, S. B. Woods, of Charlottesville, Va.

First Vice President, A. F. Mosby, of Richmond, Va.

Second Vice-President, J. B. Watkins, Hallsboro, Va.

Third Vice-president, W. H. Boaz, Covesville, Va.

Fourth Vice President, W. B. Alwood, Blacksburg, Va.

Fifth Vice-President, D. O'Rork, Staunton, Va.

Recording Secretary, Hon. G. E. Murrell, Coleman's Falls, Bedford county.

Corresponding Secretary and Treasurer, Walter Whately, Crozet.

Resolved, That we endorse the work now being done by San Jose Scale Committee under the direction of Professor W. B. Alwood.

Resolved, also, That a committee of five be authorized to present to the Legislature a petition asking for the appropriation of $2 000 to be expended for the furtherance of the great interests represented by this society.

Unanimously adopted with applause.

Professor Alwood closed with a discussion on cold storage of apples.

The meeting was throughout marked by great interest displayed and full discussion of topics in all addresses given. We hope to be able to present a fuller report on this subject in the March issue.

We are glad to know that the efforts of this society in the interests of the fruit industry of the State are being so appreciated by fruit growers that there is already a marked increase of membership. No horticulturist can afford not to be a member. The membership dues are within reach of all, being only one dollar per annum. A full report of the society's work will shortly be issued to all members.

We cordially endorse the resolution calling for a State appropriation to enable the society to carry on its work, and would urge fruit growers and farmers to write their representatives, urging the appropriation.

EARLY IRISH POTATOES.

Editor Southern Planter:

Reaching the market early with new potatoes is the plain secret of profitableness with such crops. Fall plowing is practically a necessity, except on thin sandy soils; and cross plowing as soon as the weather breaks, is the second step. There is more or less risk in seeding before the soil warms thoroughly, but this risk must be taken if an early market is to be reached; also the tubers must be well grown, as "green" tubers cook solid and are a little worse than tasteless. With new potatoes the common practice is to apply the fertilizer with the seed and—trust to Providence. As the whole crop is put through with a rush, there is no time to prepare the seed bed, and rest for ten days or two weeks before planting. As a result, the fertilizers sometimes damage the crop.

All fertilizers, practically, when mixed in the soil a few weeks, lose injurious properties. When, however, the tender rootlets push out, only to encounter raw acid phosphate, the result is inevitably death and decay. There is no risk in applying potash and phosphates some weeks before seeding; in fact, this is the best way to use such fertilizers, but the nitrogen should be applied at seeding time, or even later, if nitrate of soda is used. The crop is planted usually in drills just far enough apart to admit of horse-hoeing; therefore, broadcasting the potash and acid phosphate is perfectly safe, and it should be done on top of the cross plowed soil, before the smoothing harrows are put at work. Used in this way, the chlorides of potash, which are commonly thought to be injurious to potatoes (kainit and muriate), are entirely harmless, and as useful as the high-grade sulphate.

Used in this way (it is supposed, of course, that an ample quantity has been used), there are few farm crops which resent more quickly niggardly feeding. Early potatoes make, or should make, a quick growth, and if starved, are promptly apt subjects for all kinds of root disease. Not only this, but the soil may become so charged with disease germs, that succeeding crops which are adequately fed may suffer severely. In fact, for early potatoes, an excess of plant food should be used invariably. Any great excess will be saved from loss by the following cover crops, which all prudent farmers now use to follow early harvests to protect the soil from autumn washing and leaching:

Just what may be considered an excess of plant food is a simple problem. A crop of 200 bushels contains in tubers, tops, etc., 45 lbs. of nitrogen, 75 lbs. of potash, and 20 lbs. of phosphoric acid. These are contained in 1,000 lbs. of a fertilizer containing 4½ per cent. nitrogen, 7½ per cent. potash, and 6 per cent. available phosphoric acid (the latter should always be used in great excess, as it quickly takes insoluble forms in the soil). Now, while 1,000 lbs. of this fertilizer contains *enough*, that is not sufficient for success with new potatoes. At least 1,500 lbs. per acre should be used. If the potash and phosphoric acid are used together, but cannot be purchased in proper form, make a mixture for each acre of 225 lbs. of muriate of potash and 500 lbs. of ordinary acid phosphate. Then 275 lbs. of nitrate of soda can be used later, top dressed along the rows, after the plants have broken through the soil.

R. GARWOOD.

THE SAN JOSE SCALE PEST IN VIRGINIA.

We are in receipt of the second report of the State Inspector for San Jose scale. From this report and the map accompanying it, we regret to see that the pest is now found to be existing in every section of the State, from the mountains of the West to the Eastern Shore. The records show 318 cases scattered over 36 counties, and this although, from lack of means and time, the whole of the counties in the State have not yet been inspected. As a result of the enforcement of the act of the Legislature, nearly the whole of the nurseries of the State have been entirely freed from the pest, and the introduction of the scale from nurseries outside the State has been stopped. This is a great point gained, but must now be followed up by a vigorous fight by individual and private orchardists to exterminate it on their own grounds. Local authorities have power under the law to require such action, and should not hesitate to do so. We regret to see that only one or two such authorities have taken action. That it is possible to get rid of the pest has been clearly demonstrated. The use of the kerosene and soap washes is effective when properly done, and this without serious cost or loss to the owners of orchards. If these remedies or the destruction of all infested trees are not used, it will not be long before our fruit industry is seriously imperiled. Every fruit grower should send to the Experiment Station at Blacksburg for the reports of the Inspector. These give particulars of the proper method of treatment, and should be carefully studied and acted upon. The Inspector makes the following suggestions for further legislation, and we invite the attention of the members of the General Assembly to them :

First.—The results of this work show that the proper enforcement of this act, along with the investigations made necessary under its provision, requires the time of a trained man.

Second.—A further matter demanding attention is the fact that the need of this sort of police legislation is increasing with the widespread occurrence of insect enemies and plant diseases, which may be transported upon nursery stock and from orchard to orchard—examples well known are the woolly aphis of apple, black knot of plum and cherry, peach yellows, etc., and there is a constantly increasing danger of the introduction of pests which do not occur in this State.

It certainly is evident that this department ought not to attempt to further conduct such laborious and important work unless money sufficient to organize it on an independent basis is furnished. A sum not less than $2,000 per annum is needed for this purpose.

Considering the great importance of the fruit-growing interests at present and their prospective growth, I recommend, that we follow the action of sister States and provide a complete system of crop pest inspection. This would involve the amending of our present law so as to constitute the Board of Control of the Experiment Station a Board of Crop Pest Commissioners, who should have power to designate what pests shall be held to be dangerously injurious, and hence be subject to quarantine regulations within the State. They should also have power to provide regulations under which nursery plants may be shipped into this State, and, so far as the State can execute such authority, should be invested with powers of quarantine against communities likely to ship diseased plants into this State.

PLANT BREEDING BY BUD SELECTION.

All plants are made up of a succession or colony of shoots, originating in buds. These shoots show a tendency to vary as do seedlings. The degree of variation is not usually as great, since the latter unite the qualities of two parents, while the former are the product of one parent. Nevertheless, sudden and marked bud variations are not uncommon. As a matter of fact, many of our cultivated varieties have originated from bud sports. The nectarine came from a branch of the peach. A French horticulturist gave, in 1865, a list of 154 commercial varieties which had originated by bud variation, while Professor Bailey estimates that there are over 300 such sorts grown at present in our own country.

In plants like the apple, which are widely dispersed by means of graftage, there is more or less departure from the original type. The Newtown Pippin, which originated in Long Island, has varied in Virginia into the Albemarle Pippin, a poorer keeper than the original. (Query.—Ed) In the northwest it has varied into a form which has five ridges at the apex, while in Australia it is so different as to have been renamed the Five Crowned Pippin.

Professor Bailey grew the Chilian strawberry in his garden two years, during which time the new plants varied into a form indistinguishable from the ordinary cultivated sort, though quite different at first. Many other instances might be cited of plants propagated by vegetative methods, which have varied into distinct varieties. Florists and horticulturists are constantly on the watch for "sporting" shoots. When the sport is desirable it is fixed by vegetative propagation. Many forms with cut leaves, variegated foliage, weeping habit, double flowers, flowers of different color from type, and others, have been produced in this way. From the above, it will be seen that bud variation is a fact well recognized among horticulturists, especially florists and growers of ornamental shrubs and trees. I wish especially, however, to call attention to the good results following bud selection in ordinary propagation. While a sudden and marked variation from the type (usually called a sport) is an exception, yet slight though recognizable variation among shoots on a tree is the rule, and these variations tend to perpetuate themselves, though they sometimes revert as do seedlings. Our orchard fruits would be improved more rapidly if there were more care used in selecting the scions, buds or cuttings from those individuals which have proven themselves to be in advance of the average. Not only should buds be selected from proper individuals, but even from a particular branch. Small fruits can be easily improved in this way.

The common practice of plowing up, or digging up at random, the young plants from a strawberry bed is not conducive to improvement of the varieties. The most successful growers are learning that it pays to select from the best individuals each generation. In fact, it is advisable to keep a patch on purpose for breeding. Of course, a grower cannot take time to select individual plants for his customers, but he can select his breeding plants each year from the best plants of the preceding year, and thus gradually improve his breeding plants, and through them the general crop.

A. S. HITCHCOCK.

Experiment Station, Manhattan, Kan.

Live Stock and Dairy.

THE DAIRY BREEDS OF CATTLE ALDERNEYS, JERSEYS AND GUERNSEYS.

There is a group of small islands in the English Channel, about ten miles from the coast of France, called the Channel Islands, the principal of which are Jersey, Guernsey, Alderney, Sark, Herm and Jethou. The first three mentioned are the ones which produce the celebrated cattle. The climate is mild and agreeable, with no great extremes of heat or cold, and no sudden changes of temperature, making these islands a favorite resort for invalids and pleasure seekers. The scenery is varied and extremely beautiful, the coasts are high, rocky, and dangerous to navigators. The interior is mostly table land, well wooded, especially in the valleys along the winding streams. The soil is generally light, deep and fertile, producing most of the crops and fruits of the temperate zones. The land is held in small parcels—say, from five to twenty acres—and the principal crops raised are hay, wheat, potatoes and root crops for feeding stock.

Butter-making is the chief business of the farmers, and cattle have been bred with that object in view for 150 years for certain, and probably for a much longer period of time.

The number of acres in cultivation on all the islands is about 30,000. The native population is about 90,000, and the strangers and visitors usually number about 15,000 on the island of Jersey alone. The islands belong to Great Britain, but the inhabitants are allowed the same home rule which is accorded to Canada and Australia.

The first cattle imported into England and the United States from the Channel Islands, were no doubt brought from Alderney, and from that circumstance, and the great resemblance of the cattle to each other from all the islands, the importations from Jersey and Guernsey were also for some time called "Alderneys." Thus, the smallest and least populous of the three islands obtained for awhile the sole honor of producing the famous cattle of the Channel Islands.

The cattle on all the islands, no doubt, had a common origin, as they have a great resemblance to each other, and in the opinion of many good judges, might properly be classed as one breed. They have for a long time been kept separate on each island, without admixture with other breeds, or even with the cattle of the other islands. The local authorities, one hundred and thirty-seven years ago, enacted and have ever since enforced laws against the importation of cattle except for immediate slaughter for beef.

Alderney is but four miles long, and about one and one-fourth miles broad, with a population of 2,800. The isle of *Que*, in the Susquehanna river, is nearly twice as large, and more productive than Alderney, but has never been known to fame except as having been the residence of Simon Snyder, a Governor of Pennsylvania.

Alderney cattle are smaller than the Jersey or Guernseys, and on that account but few of them have been brought to this country.

Jersey, the largest of the group, is ten miles long, six miles broad, and has a population of 56,000. Mrs. Langtry, the "Jersey Lily," an actress and professional beauty, was born on the Island of Jersey. Guernsey is nearly as large as Jersey, being nine miles long and six miles broad, with a population of 30,000. The cattle are larger than the Jerseys, and, like them, have always been bred for dairy purposes, but are coarser in build, with larger bones. On account of their greater size, it is argued that they are more profitable for farmers to keep, because when fattened, they will furnish a larger quantity of beef. The Channel Island cattle may all be classed as among the small breeds, the cows usually weighing from 650 to 860 lbs. There were on the Island of Jersey, according to her last census, 11,891 cattle and 2,343 horses, or a total of 14,234 head of cattle and horses kept on 20 000 acres of tillable land; or, one animal to one and four tenths acres. It is said that on some eight-acre farms, from eight to ten head of cattle and two horses are kept, and kept well. Of course, it is done by soiling, and not by pasturage.

The farmers on this little island not only keep so large a proportion of stock, but feed their permanent population of 56,000 inhabitants, entertain 15,000 visitors annually, and in addition, export from three to four million dollars' worth of dairy and farm products every year. The principal crops are hay, wheat, turnips, potatoes, mangels, parsnips and carrots. The yield of wheat is 30 bushels per acre. Fruit is much cultivated, especially grapes, together with apples, peaches, pears, plums and apricots. About 30,000 bushels of table fruits are annually exported to London and Paris.

Notwithstanding the delightfulness of the climate, the grandeur and beauty of the scenery, and the fertility of the soil, the island would never have been heard of 100 miles from its shores, had it not been for the uncommon excellence of the Jersey cows for dairy purposes. From 16 to 17 lbs. of butter are sometimes obtained weekly from the milk of a single cow. Mrs. S. F. Peer, who visited the islands two years ago, says: "That the islanders have been able to produce animals of such superior merits, is due, I believe, to their uniform practice of selecting and breeding on

the principle of individual merit. A bull, to win a prize, must be accompanied by his dam. They score both the dam and the bull, and the first prize goes to the bull whose score, added to that of the dam, foots the highest. Pedigree goes for naught—that is to say, that in their awards, pedigrees are not taken into account."

The Jersey cows possess a delicacy of build, a deer like beauty of form, with smallness of bone, and usually carry but little flesh.

"The Jersey calf," says Mr. Sanders, "is almost always a light or dark fawn colored, sometimes with white markings; but solid colors are preferred by Jersey breeders generally. The fawn-color of the calf frequently changes with its second growth of hair, so that the body color varies from a light fawn to a squirrel grey, or a light or dark brown. Black tongues, noses and switches are preferred by Jersey fanciers generally."

In quantity of milk yielded, the Jerseys are excelled by the Holstein-Friesians, Ayrshires, and frequently by Shorthorns and Natives; but for quality and richness of milk, and the amount of golden butter that can be obtained from a given quantity of milk, they have no superiors in the world. Their butter is of peculiar excellence, being high colored, granular and firm.

In tests made with 450 cows in the United States and Canada, the average yield of butter was 14 lbs. for each cow in seven days.

J. W. Ingham.

RICHMOND LIVE-STOCK MARKETS.

I beg to enclose figures as follows of sales made at these yards during the week from January 17th to January 23d, inclusive:

Cattle, 504; hogs, 2,035; sheep, 107.

The prices ranged as follows during the week: On common cattle, from 2½ to 3c; on medium, from 3½ to 4c.; on good cattle, from 4¾ to 5c.; on hogs, from $4 to $4.75. Any further information, will be pleased to furnish you. John A. Cullen,

Manager Richmond Union Stock Yards Co.

ANGORA GOATS.

We have a number of inquiries for Angora goats. Can some one enlighten us where these can be had? No one advertises them. We are satisfied there would be profit in keeping these goats on our waste lands, if the enterprise was only properly entered upon and provision made for keeping the goats on the particular land.

ABERDEEN-ANGUS CATTLE.

Editor Southern Planter:

I have lately returned from a trip to West Virginia and Douglas county, Illinois, and in the two States purchased twenty nine head of Aberdeen Angus cattle, which, with the herd previously on hand, gives me a total of sixty four head.

I find them so well suited to our climate and short grass, and such a demand for them from the South and other States as breeders, that I have determined to close out all my common cattle and grade Angus, and confine myself strictly to the breeding of thoroughbreds.

The breeding establishment I first visited was on the top of a mountain spur of the Alleghanies, in Mineral county, West Virginia, not far from the Maryland line. It was a combined fruit and cattle farm, beautifully located in a slight depression on the top of the mountain, seven miles from depot (Keyser, on the Baltimore and Ohio Railroad). The home place is mainly used for raising hay and fruit in summer and wintering the cattle. In summer they are grazed on an Alleghany blue grass pasture sixteen miles away. The place possesses a large new barn built on modern plans, and the surroundings of the place generally and condition of the stock denote thrift, and show painstaking care and good judgment on the part of the Messrs. Arnold Bros., two young men, not old enough yet to have learned the happiness of matrimony, though well up on other matters.

My trip took me by Washington, D. C., thence over the B. & O. to Keyser.

The circumstances of my arrival there threw something of a damper over my spirits, and in any other quest I might have turned back. My departure from home was through lands bare of snow, with here and there green fields of wheat and strong growing winter oats and sometimes blue grass; but, on stepping off the train next morning at the depot, nearly deserted by the usual loafers and travelers, at six in the morning, darkness all around, save a light in the station and an occasional lonesome street light twinkling through the quietly falling snow, my spirits fell with the mercury, and even a little lower, and still went lower when I learned for the first time that my destination was seven miles away, on the top of a mountain, and the only means of transportation a slow-going stage, loaded to the brim with mail bags and various supplies for the mountain houses scattered along a forty mile route.

The hour of departure was seven. After a good, hot breakfast, and settling myself in a pair of arctics and a heavy overcoat and a seat beside the driver, we started out. I was quite surprised at the good, level roads for so rough a country; for four miles we kept

to the valley, over a road as level as a prairie, and the ascent of the mountain was so well graded that, if in a pleasure vehicle, it would have been unnecessary to break a trot in but few places. My driver was communicative, and also warm, for he had a stove in his pocket, which, however, was not shown except on his breath. He was excused, as he had forty miles ahead of him.

When half way up the mountain my host met me with a good team, and soon landed me before a blazing mountain fire.

Resuming my journey the same afternoon over the B. & O. westward bound, the ascent of the Alleghanies was soon reached, up which we rapidly glided, drawn by two heavy locomotives. The fatigue and exposure of the early day were soon forgotten as we wound in and out through the mountain hollows, wrapped in snow, stretching far below us, whose sides in places were nearly perpendicular and where certain death awaited us if a spike should draw out or a rail snap under the heavy pressure of the train rounding the sharp curves.

As night fell we passed into the valley or plain on the western side; and, as there was nothing to be seen on the outside, had to take myself to supper, the newspapers, and later, my berth.

C. E. JONES.

Fluvanna County, Va.

HEREFORD CATTLE.

Editor Southern Planter:

I am frequently in receipt of letters from parties enquiring what advantages the Hereford cattle have over other breeds. And in giving my reasons for preferring the Herefords, I do so recognizing the fact that there are many good qualities that belong to various other breeds. An important characteristic in Hereford cattle is that they carry flesh most heavily on the parts of the frame from which the best meat is cut. Their broad backs are usually loaded with meat of the finest quality, and the average Hereford carcass is found to have its fat and lean mixed in the most admirable manner. Butchers and consumers alike hold Hereford beef in high esteem. Indeed, the grass-fed Hereford beef enjoys quite an enviable reputation and brings top figures in the best markets of the country. The perfect mixing of Hereford beef has been notorious for generations. The proportion of lean to fat is exceptionally large, and the whole is juicy, tender, and choicely flavored.

Hereford cattle are unsurpassed as grazers. Robust in constitution, quiet in temperament, kindly feeders, and quick and large growers, they thrive and fatten admirably on pasture land, No variety of cattle will give a better return for the run of a yard and moderate feeding during winter. It is well known that Herefords are exceptionally robust and hardy. They suffer less than most other varieties from exposure to cold and wet, and it would appear that their share of the common ailments of the cattle kind is comparatively light. Abortion is a rare occurrence, and Hereford cows, even when submitted to extreme high pressure in feeding, breed with remarkable regularity. It is a great mistake to suppose that Herefords have no propensities for milk, as there are herds which compete favorably, for dairy purposes, with any other breed, and if such were not so, they could not rear the large healthy calves for which they are noted. It is a well established fact—one that no intelligent breeder dare deny—that the value of any thoroughbred cattle largely depends on their ability to improve the common stock of the country. You may take any number of cows, all breeds, all colors and shapes, breed them to a pure-bred Hereford bull, and more than 90 per cent. of the calves you get will possess the general characteristics of the Herefords. It is an established fact that the Herefords and their grades have taken more premiums since 1883, at the National Fat Stock Show at Chicago, than all other breeds combined. The *Breeder's Gazette* published quite recently a pamphlet showing the number of premiums awarded the different breeds since 1883 at the great Cattle Show, and the record the Herefords have made is one they may well be proud of, having won the *Breeder's Gazette* challenge plate for seven years out of nine, and champion bullock over all breeds any age for four years out of nine, and in the class for sweepstakes by ages and for *grades*, they have taken more than two out of every three premiums offered, and, in the class for *grades*, have not unfrequently taken all the prizes.

These facts, together with the high prices the Herefords are bringing every week in the markets in America and in Europe, tell pretty well as to their value to improve the common cattle of the country. That the Herefords have great constitutions, are easy keepers, heavy flesh carriers, fine grazers, and particularly adapted for crossing on any and all breeds of cattle, is a fact that need not be questioned.

My opinion is, that there is nothing so valuable to meet the depression of agriculture as a good herd of cattle, foremost in which I shall place the Herefords, especially where there is a large quantity of straw and roots to consume, and where the land is of moderate quality.

Fluvanna Co., Va. ANDREW STONE.

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

MILK FEVER.

Editor Southern Planter:

Like all large herds, that of the Filston Farm has had its share of losses by milk fever, and while every known precaution has been followed carefully, the deaths from this disease have formed a very serious loss, and the worst feature of this lay in the fact that it was always a prime good cow that died. When the new cure for milk fever was discovered by Dr. Schmidt, of Kolding, Denmark, in May, I immediately took up the treatment for use in the next case that occurred in our herd, and since then nine cows that had milk fever and which were treated with this remedy have recovered, and I think the one that died was suffocated by a dose of salts given through a mistake by our superintendent. A neighbor of mine, Mr. G. Albert Mays, of Glencoe, who had a cow go down with milk fever, borrowed our box in all haste, gave the remedy and the cow recovered, and before he had returned the box a second cow required the same attention. These are the only two cases he has had, and they were saved, and the eight that have recovered on our farm are the first cows to escape death there after having been taken with this disease. I believe to the dairy farmer, lying back in the country, the ready means of assembling these medicines and apparatus, if the full treatment could be placed in his hands ready for immediate use, will prove of the greatest benefit. In company with my brother, trading as Gardiner Bros., we have packed and sold this remedy all over the United States. I cannot claim for it that it is a sure cure, but all the evidence to hand points to recovery in 90 per cent. of the cases treated, and when it is considered that such a per centage of recovery is something new, and especially by treatment made only by men who simply followed the directions found in the medicine case, I think you will agree with me as to the great value of this cure to the dairy world and to the man who keeps a good cow.

ASA B. GARDINER.

Baltimore, Md.

[It has been our misfortune to lose so many good cows from milk fever, even under treatment by the most skilled veterinarian within our reach, that we gladly give place to this information. Personally we know nothing of the treatment mentioned, but we do know Mr. Gardiner to be a thoroughly reliable man, with a large experience with dairy cattle.—ED.]

RAISING AND FEEDING HOGS IN THE SOUTH.

Editor Southern Planter:

This is a subject that ought to demand attention as much or more than any other line of stock on the Southern farm.

The hog is naturally adapted to the South. With long summers and moderate winters, and our facilities for raising forage crops, there is no telling what can be accomplished in this industry, which is yet here practically in its infancy. We may take any of the pure breeds and so mate them as to get a hog that will exactly meet our requirements, one that is capable of taking on flesh at the rate of at least one pound per day.

With Canada peas and clover for May and June pasturage, sorghum, corn and black peas for July, August and September, sorghum and soja beans for October and November, and artichokes, German clover, vetches and turnips for the winter and spring months, there is no period of the year when good outdoor feeding cannot be had. Such a rotation of crops will go a long way in solving the question in the South: Can hogs be raised to compete with the West?

Keep the pigs fat and growing from the time they are farrowed until slaughtered, and they will lose you no money.

I am satisfied that with the above rotation of crops we can raise meat at from two and one half to three cents per pound.

T. O. SANDY.

Nottoway Co., Va.

PURE-BRED PUBLIC CATTLE SALES, 1899.

	Head.		*Average per head.*
Herefords	1,033	$271,105	$262 44
Angus	469	115,895	249 00
Shorthorn	1,794	315,535	175 75

Instructions of the Hebrew father to his son on the ranch, as he stood at the telephone after one of the many market days, when the Herefords topped the market, and lent hope and interest to a dragging trade:

"Hello, Jakey: Ship the cattles Monday, and be sure to paint their vaces viet."

ANDREW STONE.

Fluvanna Co., Va.

ANGORA GOATS.

Mr. B. L. C. Griffith, a wealthy hide and leather importer of Philadelphia, Pa., has established a breeding farm for the purpose of raising Angora goats for the eastern market. The Nannie goats, some 200 in number, were purchased of Hughes & Co., of Texas, and the Billies came from Mr. Harris, of Idaho. The flock is located on a 1,000 acre farm (mostly grown up in timber), at Green Spring depot, Louisa county, Va. Mr. George McD. Blake is the manager of the farm.

[This information came to hand after we had written and printed the enquiry as to where Angora goats could be had. We are glad to know that they can be had at home.—ED.]

The Poultry Yard.

RUMINATIONS.

Editor Southern Planter:

During the recent cold snap, by the glow of a cheerful fire, we pondered some of the "whys and wherefores" of the Southern farmer, and were convinced in our own minds that if he could be induced not to despise small things—remembering that the pennies make the dimes and the dimes the dollars—he would be much benefited financially. A great many will raise grain and tobacco at a small margin, or possibly a loss, when they could invest a small modicum of the same energy and capital in poultry and realize from 50 to 100 per cent. of profit. Better one dollar *made* on a business hen than fifty cents *lost* on one hundred weight of tobacco.

Some do enter the poultry business, but without any definite idea as to what they wish to do. With them "a hen is a hen"; so is a cow, a cow; and a hog, a hog; a horse, a horse; a man, a man. But what practical farmer does not first debate in his own mind what he wants his cow, hog or horse for, and then select the best breed and the best type of that breed for his purpose, and purchases that which will supply his known needs regardless of the price, and after the purchase, gives the *best possible care to it*, and in so far as practicable, not only maintain, but enhance its value? Even in man there is a vast difference between the VIR and the HOMO, and most business men recognize that difference. These things being so, why not ask yourself a few practical questions ere you embark in the poultry business? What is your object in entering the business? "*To make money.*" Yes, but how? By the sale of eggs? Then from the best information at command, use the non-sitters, say some, though others say the American types will do equally well. Do you want both flesh—juicy and plump—and eggs? Then, from our own experience, we say take the B. P. Rocks, Wyandottes, Brahmas or any of their class. What you need to do is to determine what you wish to do and then select the best type of the best breed for your purpose—*a thoroughbred*, and they are not for sale at a dollar apiece—study the standard of perfection as to your birds and keep them to that standard. Let your customers rather than yourself "toot your horn." Take your best specimens to a poultry exhibit, and if you do not take home a prize you will at least take experience and the candid opinion of the judge, and if practical, and not too much "set in your ways," you will have learned a valuable lesson.

It's time now that all breeding ens were made up. And just at this point comes failure to secure the best results. So many deem it such an easy matter, whereas it is a subject for deep study, and not a simple matter of placing cocks and hens of the same breed in the same pen. To discuss all the ins and outs of this subject would be a lengthy and difficult task. A few general principles may be of service. First, then, the male bird should above all else be *healthy* and *vigorous*, with well shaped head and comb and bright, flashing eye, as near a true type of his breed as you have. A bird with these characteristics will generally give more fertile eggs, stronger chicks and best results. Give him as companions females with good head, eye and comb, and of the proper shape, and your mating will be correct for *shape*. I lay especial emphasis on the head and comb, as they seem to be the finishing touches of nature, and however perfect in other respects a fowl may be, if its head is coarse and comb awry, the whole bird is affected, to its detriment, just as a coarse, brutal face destroys the seemingly perfect in a well dressed man or woman. Matings for color are subjects as yet unsolved, either in the solid or parti colored birds; in the latter, many advocating double matings, and not a few holding to the single. Our experience and observations along this line will have to be reserved for a future issue.

J. H. SLEDD.

Powhatan C. H., Va.

RECENT EXPERIMENTS IN FEEDING DUCKS.

The feeding and management of poultry has been studied by a number of the stations. In most cases the work has been confined to chickens, although some noteworthy investigations have been conducted with geese. Quite recently three of the stations have reported experiments with ducks.

The Michigan Station studied the comparative growth made by 39 young ducks and the same number of chickens on similar rations. The ducks were two weeks old at the beginning of the test, and were fed middlings, corn and bran, together with the necessary grit and green food (lettuce), and were given the run of a small yard with a grass patch. The chickens were fed bran and relatively more corn meal than the ducks, but had no middlings. They were also given lettuce and allowed the run of a grass plat. Both chickens and ducks were given skim milk in addition to the other food. At the beginning of the test the ducks weighed 13.25 pounds and the chickens 7.5 pounds. In five weeks the ducks were nearly ready for the early market and had gained 108.75 pounds. They had eaten 41.3 pounds of corn, 93.1 pounds of middlings, 43 4 pounds of bran, 59 pounds of lettuce, and 88 pounds of skim milk. The total cost of a pound of gain was 1.9 cents. In the same period the chickens had gained 30 pounds and had consumed 52.2 pounds of corn, 25.9 pounds of bran, 46 pounds of lettuce, and 44.3 pounds of skim milk. The total cost of a pound of gain was 4.84 cents. In discussing the

profits corn and bran are rated at $14 and middlings at $15 per ton, milk at 20 cents per hundred, and lettuce at 1 cent per pound. The ducks gained much more rapidly than the chickens and the gains were more economically made. The chickens were not large enough for market at the close of the test, and the feeding was continued for some time before they were sold.

At the North Carolina Station 18 Pekin ducks were fed for fifty six days from the time they were hatched. At the beginning of the test the total food consisted of 4.4 ounces of corn meal and an equal amount of bran per head daily, while at the close of the test 6 pounds 10 ounces of meal, 4 pounds 3 ounces of bran, and 3 pounds 5 ounces of bone were fed daily. In addition to the grain an amount of fine grit equal to one sixth of the weight of the grain, and chopped green clover equal to one fourth the bulk of the ration were also fed. All the feed was mixed with water to a crumbly mass and fed in troughs. No water was allowed except for drinking purposes. In this test corn meal, cut bone and grit were each rated at 1 cent per pound and wheat bran at 0.9 cent per pound. Account was also taken of the value of the clover fed, the eggs set, and the food of hens carrying the ducks. The ducks weighed 2 ounces when hatched, and 4 pounds 15½ ounces at the close of the test. The cost of a pound of gain was 5 05 cents; that is, the ducks cost on an average 25 cents to fatten, and were sold for 50 cents each.

Experiments at the New York State Station showed that ducks did not thrive and make rapid growth unless they were fed a considerable amount of animal matter, the most rapid and economical gains being made when from 40 to 50 per cent. of the protein of the ration was supplied in the form of animal matter.

C. F. Langworthy.

FEEDING FOR EGGS.

The Hon. Edward Atkinson, of Boston, sends us the following suggestions on this subject:

A suggestion which happened to fall to me from a New England lumberman, who has been operating in Guatemala for several years, may be serviceable to the breeders of poultry in the South. Upon inquiry as to the customary rations of workmen in Guatemala, he said: "We get most of our meat from chickens, and we eat a great many eggs." My remark was: "That is rather surprising. I thought hens did not thrive well in so hot a country." "Oh," said he, "we keep them well supplied with Chili peppers, which grow the year round. The hens feed on them with the greatest avidity, paying no regard to the extremely hot peppery quality, keeping in good flesh and keeping up almost constant laying."

Upon inquiry in New England I find that one of our best hen fanciers feeds our ordinary green peppers during the season when they are growing, with good results. It occurs to me that there are many varieties of the pepper plant which can be cultivated throughout the South, and some of them very prolific.

Then comes up another hint, which the captain of a whaler gave me many years ago, before the days of canned provisions. His practice was to provide as an outfit several new oil casks filled with potatoes and molasses, the molasses preserving the tubers throughout the voyage, thus enabling him to keep his crew free of the scurvy, which is due to too large a proportion of salt provisions. Herein is a suggestive combination: sorghum syrup, glucose syrup, or refuse molasses, may all serve for the preservation of peppers, green beans, or bean vines, green pea vines or any other green crop. Thus a combination may be made of the starchy carbo hydrates, the nitrogen of the leguminous plant, the sharp quality of the peppers, and if a little air slacked lime or powdered oyster shell could be added, the lime element would be supplied for the shell. A slight investigation would give the right proportions. Can there be any reason to doubt that casks of this material could be set aside for the supply of the hen yard at all seasons? The tendency of the molasses or syrup to become acid could be easily corrected. What more could respectable hens desire to induce them to keep up their domestic industry? Under such conditions could they not afford to compete with the pauper hens of Canada, even without any protective duty on eggs?

THE BEST BREEDS TO KEEP.

From a bulletin issued by the North Carolina Experiment Station, detailing results of experiments made during the past year, we take the following:

For high production, weight of eggs produced, as well as for economy in production, pullets far outstrip hens. Young, vigorous stock is best stock to keep.

The greatest production of eggs from pullets have been made in this order—Light Brahma, Silver Laced Wyandotte, Black Langshan, Barred Plymouth Rock and Single Comb Brown Leghorn. White Wyandotte, White Plymouth Rock, Black Minorca and Buff Cochin at the foot of this list.

Among the hens, late hatched Barred Plymouth Rock lead, with Black Langshan and Brown Leghorn, followed by Barred Plymouth Rock and Buff Cochin, in this order. White Wyandotte and Light Brahma foot the list.

The greatest production of weight of eggs brings the birds in a little different order.

Among the pullets this order is: Light Brahma, Silver Laced Wyandotte, Black Langshan, Barred Plymouth Rock, White Wyandotte and White Plymouth Rock, with Black Minorca, Leghorns and Buff Cochins last.

In production of weight of eggs no hens were equal to the pullets of the same breed, except Brown Leghorn and Buff Cochin, and these were the poorest producers of weight of eggs.

Now to change from numbers and weight of eggs produced to economy of production, a marked difference will be noted.

The leading breeds in this comparison are Brown Leghorn, Barred Plymouth Rock (counting the late hatch hens only), Black Langshan and White Wyandotte. If Silver Laced Wyandottes were represented by mature fowls as good in proportion as the pullets, they would stand second best in rank in economy of production.

As far as this record goes it shows that for high production, weight of eggs produced, as well as for economy in production, pullets far outstrip hens.

The Horse.

NOTES.

Mr. George Green, the efficient and well-known secretary of the East Carolina Fish, Oyster, Game and Industrial Association, New Bern, N. C., has issued the speed programme of the annual fair and race meeting of the association, which will take place April 17th, 18th, 19th and 20th. During previous years the fairs and race meetings of the association have been held in February, when, oftentimes, unfavorable weather conditions have marred the success of the undertaking; consequently the change of dates will be favorably regarded by horsemen and the public in general. Messrs. William Ellis and John Dunn are directors of the speed department, and $2,000 will be offered in purses, ranging from $100 to $200 each, for trotters, pacers and runners, while $1,000 has been reserved for specials.

With that good race-horse Devotee, thoroughbred son of Alarm and Sister of Mercy, by War Dance, at the head of their stud, Messrs. W. H. and A. J. Joyner, of the Trouble Creek Stud, Garysburg, N. C., have commenced the breeding of thoroughbred hunters and saddle-horses. Among the mares to be bred to the handsome chestnut son of Alarm during the coming season are Opine, by imported Order, out of Triumph; Eva R., by Wauwekas, out of Jenny H; and Florence B., by Arcturus, out of Mary Long.

A. J. Joyner resides in New Jersey, and is well known as one of the most skilful trainers of runners in the country; but W. H., the younger brother, is a prosperous merchant at Garysburg, and is wintering a stable of horses at Trouble Creek, among them being King's Pride, brown colt, 4, by imported Prestonpans, out of Queenstown, chesnut filly, 3 by Knight of Ellerslie, out of Pocahontas; bay filly, 2, by Fiddler, out of Eva R., and others.

The initial fair and race meeting of the Piedmont Fair Association, Winston, N. C., held in October last, was a successful one, which has encouraged the management to put forth even greater efforts in behalf of the forthcoming one to be held this fall.

Secretary G. E. Webb, public spirited and energetic, has put forth his best efforts in behalf of the association, and to him its success is largely due. In anticipation of the next fair quite a number of improvements are to be made on the grounds, among them being the erection of a big main building or exhibition hall, a lot of new stables, and other outbuildings. In the spring work will be commenced on the race course, and when completed will very likely be the safest and fastest half-mile track in the State.

The well-known trainer and driver, George F. Dyer, formerly of Dyer Brothers, managers of the Roanoke Driving Park, Roanoke, Va., and later lessee of the Fair Grounds track, Lynchburg, Va., has removed to Winston, N. C., and assumed charge of the Piedmont Fair Association's grounds and track, where he is wintering a stable of trotters and pacers. Dyer is a painstaking, careful handler, and has been quite successful as a developer of both colts and aged horses—the very fast mare Mary D., by Cheyenne; Laura D., 2:22½, pacing, by General Hancock, and other good ones, having been developed by him.

His stable now includes Lady Phillips, 2:19¼, pacing, by Cuckoo, son of Ambassador, dam by Brown Hal.; Skyland Girl, 2:28, pacing, by Simmons, 2:2, dam the well-known roan mare Mamie Woods, 2:20, by Woods' Hambletonian; Queen Bess, 2:32½, roan mare, by Blue Bird, son of Jay Bird, dam by Florida; Stonewall Jackson, by Brown Hal and a brown horse, 5, by Extralight, dam by Jolly Friar.

Mr. T. O. Sandy, of Burkeville, Va., well known as a breeder of Holstein and Jersey cattle, has purchased of J. A. Jarvis, Eastville, Va., the imported hackney stallion, The Duke, son of Silver Star and Lady Fanny, by Rob Roy, and will place him in the stud. The Duke is a stoutly made, handsome horse, a pleasant, prompt driver, while his disposition can scarcely be excelled. The late Captain Orris A. Browne, of Cape Charles, Va., who purchased the horse in New York some years since and brought him to Virginia, thought very highly of him. Captain Browne weighed 250 pounds, and frequently asserted that The Duke was about the only horse that he had found able to carry him day after day over the immense Hollywood Place, near Cape Charles, and stand up under the work. The Duke left a number of his get on the Eastern Shore of Virginia, and as harness, saddle and general purpose horses they are well thought of.

That good steeplechase mare, White Garters, the chestnut daughter of imported Rigoletto and Vesta, by Catesby, who was brought out by Mr. Charles H. Hurkamp, Fredericksburg, Va., and proved herself a sensational jumper for a couple of seasons, has been retired to the stud. She went wrong in 1899, and has been secured from Mr. Chamblet by Mr. Robert Neville, of the Pelham Stud, Welbourne, Va., where she was bred. White Garters will be mated this season with imported Ardington, the successor of imported Rigoletto, as the head of the Pelham Stud.

Colonel K. M. Murchison, well known as an extensive land owner, banker and capitalist of Wilmington, N. C., but who, with his family, spends the greater portion of the year at his residence in New York City, has recently acquired by purchase from Mr. Charles H. Hurkamp, of the Amaret Farm, Fredericksburg, Va., the grand-looking, heavy-weight hunter, Hornpipe, a roan gelding, five years old, by Young Sanford, son of Sanford, by Lexington, who stands sixteen hands and an inch in height and weighs 1,175 pounds. Hornpipe is up to any weight, and one of the highest class specimens of the park saddle horse yet sent out from Virginia, being able to clear the bars at five feet six inches with ease, while notwithstanding his size he is lithe, graceful and active in his movements. The big roan son of Young Sanford was purchased by Colonel Murchison for his daughter, Miss Marie Murchison, who will use him as a hunter during the winter

at Orton Plantation, near Wilmington, and in the spring Hornpipe will be taken to New York and used as park saddler.

As the sire of good looking colts that develop into speedy, handsome road horses, the get of Gregorian, 2:29¾, the son of Prince George and Beltina, by Mansfield, who heads the stud of Mr. L. Banks Holt, Graham, N. C., are not excelled by any horse in that State. Gregorian is the sire of Glencoe, 2:25; Rowdy Bob, 2:30, and others of promise. Giles Mebane, the beautiful four-year old brown son of John R. Gentry, 2:00¼, out of the Hanna mare, Winnie D., dam of three in the list, is the stud companion of Gregorian. In addition to these horses Mr. Holt has in the stud at Alamance the Shetland stallions, Governor Peck, Dupont and the midget Montrose, who stands but thirty-six inches in height.

Among the trotters in winter quarters around Richmond are Mosul, 2:09¼, by Sultan out of Virginia Maid, by Sam Purdy; Kodras, 2:15½, by Norval, out of Bianca, by Blackwood, Jr.; McZeus, 2:13, by McKinney, dam Grace Kaiser, by Kaiser; Roster, 2:16¼, by Almomedo, out of Red Rose, by Red Wilkes; Firewood, 2:17½, by King Nutwood, dam Medina, by Middletown; Eloroy, 2:18½, by Simmons, dam Berkshire Belle, by Alcyone; Hulman, 2:20, by Quartermaster, dam Winnie D., by Hannis; Lucena, 2:22½, by Wickliffe, dam Happy Princess, by Happy Medium, and others with slower records, while in addition there are also quite a number of green horses and colts.

The well known newspaper men and breeders of thoroughbreds, trotters and hackneys, Marshall & Thompson, Warrenton, Va., desire to dispose of the imported hackney stallion, Young Nobleman, whose get are uniformly good looking, of tractable dispositions, and wonderfully free from blemishes and various forms of unsoundness. Young Nobleman is a handsome, well formed horse, and was a show ring winner in England, capturing, among other prizes, the gold medal at Islington.

Get your friends and neighbors to subscribe for the *Southern Planter*. It can be had for the nominal sum of fifty cents a year, which places it within the reach of all. The *Planter* not only ranks among the highest class agricultural journals published, but it is the oldest publication of its class in the country, being now in its sixty-first year of publication. The editor-in-chief is a practical farmer, whose views are liberal and progressive, and along these lines the *Planter* is conducted. As an advertising medium it is unexcelled, having a circulation of over 10,000 copies, reaching many different sections and the best people in each section.

The famous brood mare, Tillie Russell, a thoroughbred daughter of Scathelock and Daisy, by Cracker, son of Boston, owned in the Ellerslie Stud, Charlottesville, Va., is in foal to Eon, by whose sire, Eolus, she produced the good race horse and money winner, Russell.

BROAD ROCK.

BLANKETING HORSES.

For eight years it has been my custom to blanket horses which are warm and wet after a hard drive. The results have been very satisfactory, and there are physiological reasons why they should be. Rapid evaporation extracts heat rapidly; the rapid extraction of heat causes the great network of capillary blood vessels to contract, thus causing internal congestion. Many have observed a horse standing with front and hind feet closely together and spinal column curved upward till he resembled a dromedary, on a cold morning after being put away warm without blanketing. The desideratum is not drying off quickly, but the application of a woolen covering, that does not absorb heat rapidly, but prevents rapid radiation, thereby preventing the impairment of muscular tissue, which will sooner or later be recognized in muscular soreness. Not only this, but the internal organs—liver, lungs and intestines—have to accommodate an abnormal quantity of blood if the surface is cooled rapidly, resulting in serious impairment of their functions. Retained heat on the surface keeps up a normal action of the skin. The sweat glands cease to excrete gradually, and the oil glands at the roots of the hair functionate normally, hence the smooth coat of soft and pliable hair we find in the morning on a hard driven horse which has been properly blanketed at night. These statements refer to stables not artificially heated.

The writer once broke through the ice while crossing the river. The temperature was considerably below the freezing point. A couple of good blankets wrapped about him enabled him to ride six miles with comparative comfort (and no unpleasant after effects), without which there would have developed much muscular soreness, the explanation of the same having already been given.—*L. E Barton, in Western Horseman.*

THE FIRST WINTER.

The best methods for carrying colts and calves through the first winter are, in my opinion, first, they should be fed regularly on some nutritious food, such as threshed oats or some kind of ground feed. They should also have access to some kind of rough feed, such as hay, oats, straw, or corn fodder, and should have plenty of water, and should be well protected from the storms of winter. I do not believe young stock should be kept too closely confined. They should be allowed to run out in the daytime, where they will have a chance to exercise and also to get the sunshine, both of which are very essential. The present prices of cattle, and the increasing demand for good horses, will not justify negligence in carrying them through the first winter. We think there is more profit on the animal that is well cared for, and kept in growing condition the year round, than the one that is neglected, for the latter will be very poor and weak in the spring, and will require some time to gain what it has lost through the winter, while the other has made a good growth and almost doubled in value.—*Cor. Iowa Homestead.*

Miscellaneous.

VIRGINIA STATE BOARD OF AGRICULTURE

The Legislature of Virginia now in session having enacted a statute imposing a tonnage tax on fertilizers and appropriating the proceeds of the tax to the support of the State Board of Agriculture, has realized that something more than money is needed to make the Department an effective one, and now proposes to supply this deficiency by a bill changing the method of appointment of the Board and the status of the Commissioner of Agriculture. Without here entering upon a lengthy criticism of the policy of a tonnage tax on fertilizers and the appropriation of the proceeds to the support of the work of the Board, further than to say that neither that system of taxation nor that method of providing for the work of the Board commends itself to us as being the best that could be adopted, as the one simply amounts to imposing an additional tax on the farmer, who already pays more than his fair share of the taxation of the State, and, further, makes it more difficult for him to get the particular fertilizer he desires to buy, as only those who are selling a very large tonnage of fertilizer in the State will go to the cost and trouble of buying and affixing the tags called for, whilst the other is wrong in principle, as it makes the efficiency of the Department depend on the produce of a particular tax. If a State Department of Agriculture is needed—and we hold strongly that it is—then it should be provided for out of the general taxation of the State, and should have such a sum appropriated for its support as in the judgment of the Legislature ought to be expended for that purpose. It would be quite as sound in principle to require the criminals of the State to provide the cost of the execution of the criminal law of the State as to require the farmers of the State to provide the funds needed for the Department of Agriculture. Both expenditures are needed in the interest of the well being of the whole State, and both should be provided out of the general taxes levied on all alike. We do, however, desire to impress on the Legislature the fact that the proposed amendment of the law altering the method of election of the State Board of Agriculture and the status of the Commissioner of Agriculture, is not one which, in our opinion, is likely to effect the purpose intended, but rather will lead to less effectiveness and will have the direct result of putting the Board into politics, from which, amidst all that has been said against the Board as at present appointed, it has been kept out up to the present time. Under the existing law, the Board is appointed by the Governor, half retiring every two years; and it is required that four out of the ten members shall be of a different political party from the other six members. The Commissioner of Agriculture is appointed by the Governor, and is ex-officio the Secretary and Treasurer of the Board, but, unfortunately, he is also under the statute creating his office an independent officer of the Department, and as such required to report and advise the Governor and Legislature independently of the Board of which he is the servant and executive officer. Such a conflict of authority and power can never work effectually, and this, and not the lack of money, has been largely the cause of the failure of the Board to do effective work for the farmers. The only Boards of Agriculture of which we have knowledge that have been able to do effectual work, are those where the Board, however elected, has the power to appoint its own officers, and these have no other authority than that derived from the Board appointing them. This is a sound principle, and one applied in the conduct of business by every one conducting a business. Instead of following so plain and common sense a method of organizing the Department, the bill introduced proposes to make the appointment of the Board subject to the control of the Legislature, thus bringing it into the political arena to be made the foot-ball of the politicians, and then further complicates matters by making the Commissioner of Agriculture ex-officio Chairman of the Board, and provides for the creation of another paid official as Secretary of the Board. Under the Fertilizer law, provision is made for payment of a salary, not exceeding $2,000 a year, to the Commissioner, and the Secretary of the Board will certainly not be likely to expect to receive less than $1,200 per year. Here we shall at once have an expenditure for two officers alone of over $3,000 per year. The result of such an arrangement will practically be to make the Board merely the registering authority of the acts of the Commissioner of Agriculture, and will certainly lead to friction and the refusal of the best men to serve on the Board. As this Board is purely and solely intended to advance and look after the interests of agriculture in the State, why should not the appointment of the members of the Board be put directly into the hands of the farmers? We would suggest that the bill be so changed as to provide for a board of 40 members, one to be elected from each State Senatorial District at the same time as it elects its Senator. This would ensure representation of every section of the State, and it would rest with the farmers in each section to make choice of a fit and proper representative. This Board should be required to meet not more than twice in each year (several of the most effective boards in other States

only meet in full session once a year), and should have power to appoint its own President, Secretary, and all other officers, and the Commissionership of Agriculture should be abolished. The Board should also be required to elect an Executive Committee, to meet every three months, to have supervision over the routine work of the Board and its officers. Subject to these provisions, give the Board absolute authority to do anything in its judgment necessary to advance agriculture and immigration in the State, and give it an appropriation of $20,000 per year to be paid out of the Treasury, the Board paying into the Treasury all fees received from the registration or tonnage tax on fertilizers or otherwise coming to its hands. We believe such a Board would be found to work effectively and give satisfaction to the farmers. If it failed, they would themselves be to blame, and would have the remedy in their own hands. That the existing organization of the Department of Agriculture is the cause of its failure to do the work required of it with satisfaction to the farmers, and not the lack of money wherewith to do the work is evidenced by the fact that although the Board has been constituted of representative and able men ever since its creation, and has had, for years, up to the last session of the Legislature, an appropriation of $10,000 per year, and the right to expend $3,000 out of the fertilizer fees in executing the fertilizer law, *it has never, in any year since its creation, expended the whole of its appropriation,* but has allowed large sums to lapse into the Treasury. Conflict of power and authority over its officers, and not lack of ability in the Board, has been the cause of its failure. This we know from Presidents and members of the Board, and from our own observation. We urge all farmers to write their representatives in support of such an amendment of the proposed law as we suggest.

PROGRESS.

A correspondent from Southwest Virginia writes us as follows: "If your correspondents would compare farming in Southwest Virginia with Greenbrier, West Virginia, and that with Augusta county, and that with Rockingham and Shenandoah counties, as it was in 1870, and as it is at present, they would not fail to see that the advance in methods is marked, and the advance in results still more marked. In 1872, on my farm in Southwest Virginia, I could graze twelve or fifteen cattle, four or five horses, four cows and a few hogs, and raise fifteen to twenty bushels of corn and eight to ten bushels of wheat *on choice patches.* Last year I kept sixty eight cattle, ten horses, one hundred and twenty sheep, five cows and forty hogs and other stock, and raised forty bushels of corn and twenty bushels of wheat to the acre, and other crops accordingly, taking the land as it came." This speaks well for the management of this farm and of the capabilities of Virginia lands.

THE AGRICULTURAL PRESS—A RETROSPECT.

Editor Southern Planter:

I have been pushed so hard of late that I fear that anything I may now have to offer in regard to the anniversary occasion will be too late.

In looking back over my connection with the agricultural press, I am struck with the fact that there has been a vast evolution going on. My first essay as a writer for the press was a little article on the culture of the strawberry, when quite a youngster, for the *Weekly Sun* of Baltimore. I noticed that they offered to send the paper for a year if one would occasionally send an article for the agricultural page of the paper. That was away back in the fifties over forty years ago. I was then endeavoring to establish a nursery business in my native State of Virginia, and, like most new beginners, thought that I knew a great deal. I was immensely gratified to see my name in print, and to get the paper as a reward for the effort, and I semi-occasionally sent the *Sun* an article, and they were kind enough to consider them all worthy of publication.

The first regular agricultural paper to which I contributed was the *American Agriculturist.* I had no thought of pay in connection with the writing I did for many years, and of course got none. After the war, when I was once more trying to start in commercial horticulture, I was induced to contribute to the old *American Farmer,* and the editor was kind enough to say that I wielded a facile pen. For a number of years I contributed to several papers occasionally, and always made it a rule to sign my own name to everything I wrote, believing that if an article was worth printing the credit of writing it should be mine. The *American Farmer* had then separated from its connection with the *Southern Planter,* and while its editor and I were of different schools of politics, we never allowed political matters to come between us, or to appear in the paper. It was with sincere regret that I found, after the death of the veteran, Samuel Sands, that the *American Farmer* was to be disposed of as an unprofitable property, for I have long wondered why the great city of Baltimore and the State of Maryland would not liberally support a good agricultural paper. The old *American Farmer* went into the hands of political farmers in Washington, and I believe no longer exists. The *Southern Planter* had in the meantime put on a new dress, and became the most sightly of all the Southern agricultural journals. About this time, too, financial difficulties made it essential that I should get all the reward I could for what work I did. My old friend, Peter Henderson, than whom no better man ever lived, wrote to me that a man of my experience, and who could tell what he knew as well, ought to get

some income out of his work, and he accordingly introduced me to several publishers, who, at his suggestion, gave me regular contracts at fairly good pay. I have worked for some journals that I thought had a right to live, but they did not. I do not know that I helped to kill them, but there was always some one else ready to take me on until now it is hard for me to find time, amidst all my duties, to write what publishers are asking for. I started out on this, not to make an autobiography, but to give something of a sketch of what I have known of agricultural journalism during a large part of the time the *Southern Planter* has been in existence. I have for many years been interested in the success of the *Planter*. Not in a financial way as regards myself, for no one knows better than you that I could take my wares to a market that paid better. But I have been anxious to help to build up a real Southern magazine for the farm, and the matter of pay for what I do has been a secondary matter. I am egotist enough to believe that I am helping my fellow-men, and, perhaps, helping the *Planter*. The more we can get our people to read the paper, the nearer we can get our Station work to them; and in no way that I know of can we do them more good than by answering their letters on every question that confronts the tiller of the soil. That the *Southern Planter* has been a growing power for good during all the years of its existence, no one realizes more than those who have been trying to make it so. Compare the fine paper, clear type, and the number of practical farmers who contribute to its pages, with the paper as it appeared forty years ago, and the wonderful advance will be apparent. If the *Planter* advances during the next sixty years as it has in the past, I would like to be able to see it then. Even we, friend Jackson, hardly realize the possibilities of the future of agricultural journalism in the South, for the Southern farmers are just awakening to the possibilities of their lands, and there is a greater interest being taken today among the real workers on the farms in reading than ever. Look back over your old time issues, and you will note that it was only the gentlemen farmers, the men with large estates, who read the agricultural papers. Their overseers, their tenant farmers, the men who hired negroes from them, hardly ever read a paper. But the gentlemen farmers of that day in Virginia were educated men, and they wrote articles of high value for the paper. They saw the possibilities of improved agriculture better than the mass of the farmers do to-day. Men like Edmund Ruffin and others whom I might name left their impress on the agriculture of Virginia that has not yet been effaced; and while the old issues of the *Planter* were shabby in their mechanical get up, they contained the thoughts of brilliant minds. There were no Agricultural Colleges in those days, but there were men of broad and liberal education making a success as farmers, and it was their liberal education that so broadened their minds that they could grasp better than some of us do to day the problems of Southern agriculture. What breeder of the present day has the stock of thoroughbreds that John Randolph of Roanoke kept and bred, and where, outside of England, were there more real thoroughbreds than in Virginia of that day. It has taken us a generation to get back to the agricultural thought that pervaded Virginia in the days of John Randolph. The old class of educated farmers has been for many years succeeded by men of slight education, as a rule, and the old fine estates have in consequence lost much of their former fertility and importance. Much of this has of course been the result of the impoverishment of the war; but when I hear Northern men coming South and talking about the poor farming of the South, I feel like telling them that a generation ago there was far better farming done in Virginia than ever has been in the North. True, there were none of the great money spending places like the merchant princes of New York maintain, where every crop grown and animal raised costs five times its value, but business like and money making farming was done. One smart youngster wrote a few years ago about his introducing clover into one of the finest agricultural counties in Maryland, where, in fact, clover had been a farm crop in the old days when this country of western New York was being cleared from the wild forest. I often wish that some of the Northern men who come so patronizingly into poor, war-impoverished Virginia, could have seen the farming in Virginia in her palmy days, when the *Southern Planter* was young, but full of brains. May her shadow never grow less.

W. F. MASSEY.

A WORD TO THE SOUTHERN FARMERS.

Editor Southern Planter:

A knowledge of what the East Coast States are capable of doing, and observing what they do not do, leads me to some suggestions to those in possession of at least "forty acres and a mule" in this section. There is no brighter spot under the sun; no more favorable opportunity for all the fine products of the farm, than from Virginia southward. It is the most favored spot for the manifestations of a high intelligence, an exact science, and a fine-art skill in making the soil to bring forth in abundance, upon the globe.

France is in the lead in all agricultural and manufacturing industries, and yet France has 40,000 square miles less territory than these five Atlantic Coast States. France has 38,000,000 of people, and these States less than 7,000,000, and yet these States have everything of climate, soil and rainfall that France has, and an hundredfold more. Everything that can be grown in France, from her silk worms to her hemp, can be grown in Virginia and North Carolina, and two crops to her one in the three States to the southward.

The mean temperature of France is 50 to 60, while the Coast States range from 50 up to 70. The rainfall of France is 20 to 30 inches, while in the East Coast there is nothing less than double that amount.

France has no soil, no climate, no condition, but the East Coast is doubly favorable; and yet the little republic grows over 75,000 tons of hemp annually and spins and weaves it all into the finest fabrics, her people wearing linen where the East Coast wears cotton. That hemp equals all the cotton raised upon the East Coast.

France has, at most, but five good ports of entry, while the East Coast has fifteen, and can have twenty equalling those of France. France has but four rivers for water power or navigation, the East Coast States four times that, and could furnish ten times the water power; and yet France leads in manufactures, and supports 38,000,000 of people against less than 7,000,000 in the five East Coast States.

If you ask why, it is simply because every acre is made to produce its utmost, and the people act upon the principle of producing all they consume. France has agricultural and manufactured products to sell to the whole world. This little nation, not so large as Texas, exports $50,000,000 worth of beet sugar annually; nor is France as well adapted to raising beets as either of the East Coast States.

Comparing with our own country, while the land of these five States is worth an average of $5 per acre, those of the Northern States, with less rainfall, less favorable conditions of climate, is worth $100 per acre. Why? One reason is the presence of manufactories, which create large towns, and the other is that every acre of land is made to yield a crop which gives a profit upon land worth $100 per acre. And yet every water power of New England, New York, New Jersey and Pennsylvania may be duplicated upon the rivers of the East Coast. Every acre in these States may be made to produce one-third to one half more than those of New York and Pennsylvania, and many crops impossible of production at the North.

While I know these facts of personal knowledge, the world does not know them, and until the people do, they will continue to pass you by on their long journeys to the bleak and arid North and West. If you wish to have your population increase, you must advertise. To advertise, you must show by your daily and weekly and monthly labors that your land will produce just as good crops, and better and more of them, than now produced elsewhere.

It is not enough to produce a medium crop of anything, nor a fair lot of animals, nor one field of a heavy yield of corn, or one lot of fine horses, or cattle, or sheep, or hogs, but you must steadily show to the world that you can produce more upon an acre every year, and with less expense, than can be done anywhere else. Let there be a steady product of the largest and the finest and best, and you will need no other advertising.

S. S. BOYCE.

Tottenville, N. Y.

A SURE CURE.

If a man has a col' on the chist, get Casey's mixture f'r man an' baist, put him in bed, slap a musthard plasther on him that'll keep his mind employed, an' lave thim fight it out. May th' best man win. If the patient's alive in th' mornin', he not have stren'th to cough.—"*Mr. Dooley,*" *in the Ladies' Home Journal.*

RICHMOND PRICES, JANUARY 25, 1900.

COMMENTS FOR THE WEEK.

Tobacco—Brights—Rather better feeling and more doing this week. Dark—Receipts and offerings liberal; market firm at quotations; fine stemming in good, active demand at full prices. Sun-Cured—Receipts liberal; market fairly active.

Wheat—Receipts light; market active.

Corn—Steady; good demand.

Oats—Continue steady.

Hay—Quiet at the advanced quotations.

Flour—Continues dull.

Eggs—Market fairly active; receipts equal to demand.

Butter—Dull; heavy receipts.

Poultry—Fairly active; liberal receipts.

Virginia Bacon—Sides and shoulders dull; hams in fair demand.

Potatoes—Steady at quotations.

Onions—Steady; moderate receipts.

Apples—Market firm and in good condition; receipts about equal to demand.

Hides—Weak; downward tendency.

Sun-Cured Tobacco—New.

Lugs, common, $1.50 to $2.50.
Short leaf, $4 to $5.
Long leaf, $5 to $6 50.
Wrappers, $8 to $10.

Bright Tobaccos.

Smokers, medium, $8 to $9.
Cutters, medium, $13 to $15.
Fillers, medium, $5.50 to $7.
Wrappers, medium, $12 to $15.

Dark Tobacco—New.

Lugs, inferior to good, $1.75 to $3.
Medium leaf, $5 to $7.50.

Wheat.

No. 2 red, 77c.
No. 3 red, 75 to 76c.

Corn.

No. 2 white, 41c.
No. 3 white, 40½ to 41c.
No. 2 mixed, 40c.
White corn, Va., bag lots, 41 to 42c.

Oats.

Winter seed oats, 55 to 60c.
Rye, 60c.

Hay.

No. 1 timothy, $16.
No. 1 clover, mixed, $15.
No. 1 clover, $14 to $14.50.
Virginia timothy, No. 1, $15.
Virginia, mixed, $13.50 to $14.
Clover, Virginia, $10 to $12.
Shucks, baled, $10.
Straw, compressed, $8 to $8 50.
Mill offal—bulk: Ship stuff per ton, $16 to $16.50.
Bran, $15.50.

Poultry.

Turkeys, live gobblers, per lb., 8c.
" " hens, " 9c.
" dressed gobblers, per lb., 10c.
" " hens, " 10½ to 11c.
Chickens, live, per lb., 9 to 9½c.
" dressed, per lb, 10c.

JOHN F. JACOB & CO.,
Commission Merchants, Richmond, Va.

THE
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PUBLISHED BY
THE SOUTHERN PLANTER PUBLISHING COMP'Y,
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J. F. JACKSON,
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B. MORGAN SHEPHERD,
BUSINESS MANAGER.

TERMS FOR ADVERTISING.

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TERMS OF SUBSCRIPTION.

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Always give the Name of the Post Office to which your paper is sent. Your name cannot be found on our books unless this is done.

The Date on your Label shows to what time your subscription is paid.

Subscribers failing to receive their paper promptly and regularly, will confer a favor by reporting the fact at once.

We Invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles. Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,
RICHMOND, VA.

PUBLISHERS' NOTES.

Our Anniversary Number.

We hasten to tender to our brethren of the press and to our friends all over the South our warmest thanks for the very numerous commendatory notices and congratulations received on our January issue. Although the issue was a very large one, nearly the whole has been sent out, and we shall not be able to send the same to many more applicants. The result in the increase of our subscribers has been most gratifying, and these are still coming in fast. We trust that this will continue. Although we cannot send the January issue, we can and shall send to every one a number every month as full of valuable information as it can be. Each issue is specially designed to meet the requirements of the month for which it is issued, so that it comes as "a word in season," and is immediately available for being acted upon. To those who thus use *The Planter* it cannot fail to be of help and to conduce to the profit of the subscriber. We would again ask all our subscribers to urge their friends to take the journal and to forward us as many new names with their own renewals as they can secure.

Whose Money?

We received on October 10th a remitance in stamps, renewing a subscription to the *Southern Planter*. The envelope was postmarked "Brightwood, Va.," but the sender omitted to sign his name.

We also received 50 cents in stamps on December 22, postmarked "Culpeper, Va.," without signature. We are unable to credit the owner unless claimed.

SURE CROPS depend on rich, mellow land. Rich, mellow land depends on proper drainage. Proper drainage depends on the use of drain tile. We would like to tell you how to install an effective system of drainage, and quote prices on

Farm Drain Tile

Fire Bricks, Drain Tile. **Powhatan Clay Mfg. Co., Richmond, Va.** Artistic Front Bricks.

DRAIN YOUR LAND and use AGRICULTURAL LIME. You will double your crops. We sell all sizes

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TERRA COTTA PIPE. LIME, CEMENT, PLASTER, FIRE BRICKS, &c.

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Desiring to purchase **Early Peas, Beans, Radish, Beet, Squash, Cucumber, Watermelon, Cantaloupe** or any other **Vegetable Seeds** in quantity are requested to write us for special prices, stating about the quantities required.

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STATE OF OHIO, CITY OF TOLEDO, } ss.
LUCAS COUNTY,

FRANK J. CHENEY makes oath that he is the senior partner of the firm of F. J. CHENEY & Co., doing business in the city of Toledo, county and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of CATARRH that cannot be cured by the use of HALL'S CATARRH CURE. FRANK J. CHENEY.

Sworn to before me and subscribed in my presence this 6th day of December, A. D. 1886.

{ SEAL. } A. W. GLEASON,
Notary Public.

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MAGAZINES.

The Forum for February contains many articles of great merit, nearly all written by well-known authorities Lieut. Gen Den Beer Poortugael, of the Holland Privy Council, contributes the leading article on "The Relation of England to the Transvaal;" an able paper is furnished on "The People's Party," by Senator Marion Butler, Chairman of the People's Party National Executive Committee. President Charles Dabney, of the University of Tennessee, writes a timely article on "Washington's University." Two papers on the Old Age Pension Problem in England are contributed—the first by Michael Davitt, M P, on "A Plea for Old Age Pensions," and the second by Rt. Hon W. H. Lecky, the brilliant English historian, on "Why I Oppose Old-Age Pensions." David Willcox throws new light on "The Futility of the Anti-Trust Issue," and Wm. R. Thayer writes an unusually convincing paper on "Longevity and Degeneration."

The Century for February (the mid-winter number) is an excellent issue, finely illustrated. There are articles on "Paris Re Visited—The Governmental Machine," by Richard Whiteing; "Mid-winter in New York," by Jacob A. Riis; "The Military Element in Col Waring's Career;" "Talks with Napoleon—His Life and Conversation at St. Helena," by Dr. Barry O'Meara; "Oliver Cromwell," by John Morley, is continued, and there are several continued and short stories by well-known writers.

The topics editorially treated in the American Monthly Review of Reviews for February are the Nicaragua Canal proposition now before Congress, the Canadian and Erie Canal projects, underground transit in New York and elsewhere, the currency and business situation, the treasury and the banks, the popular election of Senators, Mr. Beveridge's speech in the Senate on the Philippine question, our tariff policy in Puerto Rico and Cuba, the meaning of "neutrality" in the Boer war, and the strength and weakness of the Boer position.

Appleton's Popular Science Monthly has an article on "South Sea Bubbles in Science," by Prof. Trowbridge. Chas. A. Biggs writes on "Is the Christian Religion Declining?" Mr. Speranza, of the New York bar, has an article on "The Decline of Criminal Jurisprudence in America."

The Saturday Evening Post is a weekly journal published in Philadelphia, which has, in the past year, made a great advance in popular estimation, and bids fair to continue to grow, as it has an excellent corps of contributors, and appeals strongly to a large and varied class of readers. The Hon. T. B. Reed, the late Speaker, is writing a series of very interesting articles. The one on Monopolies is very good.

The Ladies' Home Journal for February is a very good number, containing, among other articles, "The First Night of a Play," "Through the Slums with Mrs. Ballington Booth," "What it Means to be a Librarian," by Herbert Putnam, Librarian of Congress, and "The Pew and the Man in It," by Ian Maclaren. An American Mother answers conclusively, "Have Women Robbed Men of Their Religion?" and there is an interesting article on Mlle. Chaminade, the famous composer and pianist. Another article describes "Frank Stockton's New Home in West Virginia." The opening chapters of "The Parson's Butterfly," a new serial by Mrs. Charles Terry Collins, are also presented.

Harper's Magazine for February has a number of most interesting articles, amongst these "To-Day's Science in Europe"; "The Marine Biological Laboratory"; "The Congo State and Central African Problems"; "Russia in Central Asia," by Arch. R. Colquhoun; "The Future of the Mississippi Valley," by Prof. A. B. Hurt; "The White Man's Rule in Singapore"; "The Railroad and the People. A New Educational Policy now Operating in the West. These are finely illustrated. There are also a number of continued and short stories.

The New Lippincott. Louis Zangwill's complete novel in the February number of the "New Lippincott," entitled "The Siren from Bath," is a refreshing antidote to the Colonial romance which has been so popular for some time past

A strong appeal to one's sympathies is contained in the second Mormon story in Mrs. J. K. Hudson's series, begun in the January number. "A Stake of Zion in the Wilderness" is about the courageous struggles of a Mormon wife—New England born against the advice of Brigham Young, to her husband, to "Go home and

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Kidneys, liver and stomach will all once respond? No thorn in this point.

Blood Poisoning—"The surgeon said when he took out the brass shell received in wound at San Juan Hill two weeks before, that it would have poisoned me if it had not been for my pure blood. I told him it was Hood's Sarsaparilla that made it pure." GEORGE P. COOPER, Co. G, 25th U. S. Inf., Washington Barracks, Washington, D. C.

Rheumatism—"Myself and a friend both suffered from severe attacks of rheumatism. Hood's Sarsaparilla cured both. We would not be without it." WM. H. LESTER, 65 Leonard St., Fall River, Mass.

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Address M. HEWETSON, Buena Vista, N. C.

read the Word, and get thee another wife, or more than one, before I come again." The inevitable hour had come. Her firmness was heavily punished.

"The Squire" is a first-rate story of a city election, with much local color and character thinly veiled, by Francis Churchill Williams, who is rising into note for this class of fiction.

"What Gives a Popular Song its Vogue?" by the eminent musical critic, Henry T Finck, is entirely seasonable for the opera months; and "A Day with a British Militia Regiment," by Herbert Hudson, a late militia subaltern, is of special interest at the moment, and is written with spirit and inner knowledge.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Annual report, 1899. Report of the editor, 1899.

Experiment Station Record, Vol. X., No. 12.

Experiment Station Record, Vol. XI., Nos. 3 and 4.

Dietary Studies of Negroes in Eastern Virginia.

Report of the Forester, 1899.

Division of Entomology. Bulletin 17. Preliminary Report on the Insect Enemies of Forests in the Northwest.

Division of Agrostology. Circular 18. Smooth Brome grass.

Circular 20. Experiments with Forage Plants in Ontario.

Division of Botany. Circular 20. Horse Radish Culture in Bohemia.

Circular 21. Yams in the West Indies.

Farmers' Bulletin 107. Experiment Station Work, XIII.

California Experiment Station, Berkley, Cal. Bulletin 126. Paris Green for the Codling Moth.

Cornell Experiment Station, Ithaca, N.Y. Bulletin 176. The Peach Tree borer.

Georgia Experiment Station, Experiment, Ga. Bulletin46. Corn Culture.

Kansas Experiment Station, Manhattan, Kas. Bulletin 90. Alfalfa, in Eastern Kansas.

Louisiana Experiment Station, Baton Rouge, La. Bulletin 58. Analyses of Commercial Fertilizers.

Maine Experiment Station, Orono, Me. Bulletin 54. Nuts as food.

Maryland Experiment Station, College Park, Md. Agricultural College Quarterly—Testing Seeds.

Michigan Board of Agriculture, Agricultural College. Mich. Twenty-seventh Annual Report. This is a large octavo volume of over 700 pages, full of valuable information, and shows the Board to be doing excellent work.

Minnesota Experiment Station, St. Anthony Park, Minn. Bulletin 63. Miscellaneous Analyses.

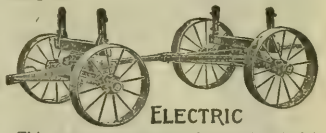
Bulletin 65. Soil Investigations.

Mississippi Experiment Station. Bulletin 60. Value of Cotton Seed to the farmer.

Nebraska Experiment Station, Lincoln, Neb. Bulletin 61. Hungarian Brome Grass.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co. who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



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Lightest Running and Handiest to Operate. 7 SIZES—2 to 25 horse power. One style for windwheel use. One style for cotton seed.

(Also make Sweep Feed Grinders.)

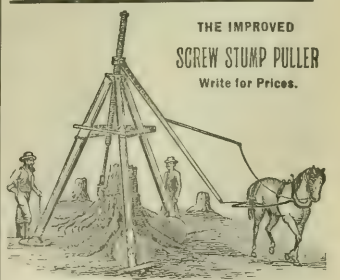
R. N. P. BOWSHER CO.,

South Bend, Ind.

THE IMPROVED

SCREW STUMP PULLER

Write for Prices.



Chamberlin Mfg. Co., Olean, N. Y., U. S. A.

4 Buggy Wheels with tire on, $6.75. With Axles and Boxes Set, $9.75.



I make all sizes and grades Carriage and wagon hardware of every description. Send for catalogue giving prices on wheels ¾ to 4 in. tread with full and plain instructions how to order. **W. V. BOOB, Center Hall, Pa.**

VICK'S VIGOROUS VARIETIES

Seeds make thriving plants. Thriving plants make farming profitable. We grow seeds for successful farmers and offer none but the most

Write for JAMES VICK'S SONS, Rochester, N. Y.

for 1900 Garden and Floral Guide. Contains full information of our modern method of seed testing to definite qualities. Deserves many times its cost.

The Improved BOSS FEED MILL.



Needs no praise—speaks for itself. Will grind all kinds of grain, fine or coarse, wet or dry, with more speed and less power than any other mill manufactured. Sales doubled every year for the past eight years. Catalogue free. Prices reasonable. Every mill guaranteed.

WOODCOCK FOUNDRY & MACHINE WORKS, CHILLICOTHE, OHIO.

STEEL ROOFING



THE ONLY TOOLS YOU NEED.

We have on hand 25,000 squares BRAND NEW STEEL ROOFING. Sheets either flat, corrugated or V's crimped.

Price per square of 10x10 feet or 100 square feet..... $1.75

No other tool than a hatchet or hammer is required to lay this roofing. We furnish with each order sufficient paint to cover and nails to lay it, without additional charge.

Write for our free catalogue No 166, of general merchandise bought by U. S. Sheriffs and Receiver's Sales. "OUR PRICES ARE ONE-HALF OF OTHERS."

CHICAGO HOUSE WRECKING CO. W. 35th & Iron Sts., Chicago.

A New Feature in **COB AND FEED MILLS.**



This No. 1 Mill is especially adapted for windmill or other light power, grinding cobs and corn fine as well as other small grain. Has no equal for light draught, durability and simplicity. Capacity from 10 to 30 bus. per hour, 2 to 6 horse power. Price, only $18. Write for circular. Mention the SOUTHERN PLANTER. Address New Holland Machine Wks, New Holland, Pa.

Sharples Cream Separators—profitable dairying

New York Experiment Station, Geneva, N. Y. Bulletin 159. A pest of woodland and grove.

Bulletin 160. Analyses of Commercial Fertilizers.

Bulletin 161. Gooseberry Mildew.

North Carolina Experiment Station, Raleigh, N. C. Bulletin 167. Poultry Experiments.

Virginia State Board of Agriculture. Richmond, Va. Report for 1899. This report contains much interesting matter for the farmers of the State, to whom it will be sent free on application.

Virginia Experiment Station, Blacksburg, Va. Second report of the State Inspector for the San Jose scale.

Bulletin 96. Experiment with chickens.

Bulletin 95. Bovine distemper.

Virginia State Weather Service, Richmond, Va. Report for December, 1899.

Wyoming Experiment Station, Laramie, Wyo. Bulletin 41. Some experiments with sub-soiling.

Index Bulletin.

PAMPHLETS.

"The Farmers' Federation. Principles and Plan," by Walter N. Allen. Price, 50 cents. *Kansas Farmer*, Topeka, Kas.

"The Attitude of the Progressive South." Address of William A. McCorkle, late Governor of West Virginia, at the annual dinner of the Board of Trade of Newark, N. J.

CATALOGUES.

T. W. Wood & Sons, Richmond, Va., seedsmen, issue a fine and most useful catalogue

Peter Henderson & Co., seedsmen, Cortlandt street, New York send out one of the finest of the many fine catalogues the firm has issued.

S. L. Allen & Co., Philadelphia, Pa., the makers of the celebrated Planet Jr implements, issue an excellent catalogue.

The Armour Co., Chicago, Ill., send us their Farmers' Almanac for 1900, which is beautifully got up and full of information.

Joseph Harris Company, of Moreton Farm, Coldwater, N. Y., send us their Rural Almanac for 1900.

R. L. Ragland Seed Co., South Boston, Va., tobacco seed catalogue.

Pinehurst Nurseries, Pinehurst, N. C. Catalogues of seeds of trees, shrubs and plants, and of woody and herbaceous plants.

FINE FARMS in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address SAM'L B. WOODS, Charlottesville, Va.

HALLOCK WEEDER.

The Hallock Weeder is advertised in this issue. This is one of the new implements which has justified its existence in one season's trial. It has been found invaluable in working crops of almost every kind. One farmer who bought one last year told us that he would not be without it if it cost ten times its present price.



FOR 14 CENTS

We wish to gain this year 200,000 new customers, and have one

1 Pkg. Early Golden Bantam Sweet Corn, 10c
1 " Early Market Lettuce, 10c
1 " La Crosse Market Lettuce, 10c
1 " Strawberry Beion, 15c
1 " 10 Day Radish, 5c
1 " Early Rose Cabbage, 10c
1 " Ex. Dwarf Onion, 10c
1 " Brilliant Flower Seeds, 15c
Worth $1.00, for 14 cents. $1.00

Above 10 Pkgs. worth $1.00, we will mail you free, together with our great Catalog, telling all about SALZER'S MILLION DOLLAR POTATO upon receipt of this notice & 14c. stamps. We invite your trade, and know when you once try Salzer's seeds you will never do without. $200 Prizes on Salzer's 1900—rarest earliest Tomato Giant on earth. Fifty

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

..FOR SALE..

BLACK PEAS, WONDERFUL PEAS, SOJA BEANS.

W. H WILSON, St. Brides, Va.

STRAWBERRY PLANTS

EXCELSIOR, the best early berry, and all the best new and old varieties. CABBAGE PLANTS now ready to set. MAGNOLIA TREES, the great blooming Magnolia of the South. Price-list free,

A. J. McMATH, ONLEY, VIRGINIA.

The wonderful FROST PROOF PEACH

IRON MOUNTAIN, BEARS.. EVERYWHERE

Fine PEACH TREES a specialty. Everything for the Fruit Grower. Catalogue (in colors) free.

Lindsley's Nurseries, White House, N. J.

FOR SALE

Five bbls. JERUSALEM or WHITE FRENCH ARTICHOKES at $1.00 per bus. or $2 50 per bbl. Eggs from White Plymouth Rocks 75c. for 15.

J. R. PACE, Oxford, N. C.

PEA HARVESTERS.

The undersigned is prepared to book orders for the DIXIE PEA HARVESTER, to be delivered on or before August 1 1900. Description and full information can be had by applying to WM. FLORY'S SONS, Rising Sun, Ind.

A Successful Pea Thresher.

No more frails. Pea threshers cheap. Write for particulars. Satisfaction guaranteed. Freight cheap.

J. W. HAMILTON, - Houlka, Miss.

$150 SAW MILLS

For Farmers. Large Saw Mills for Lumbermen. Engines, Wood Planers, etc. Manufactured by the SALEM IRON WORKS, Salem, N. C.

Early Vegetables

need a quick and powerful stimulant—something to force growth to the limit. The money is in *earliness.*

Nitrate of Soda

fits the case exactly. Apply in small quantities during the early growing period of the plants.

It adds *color, flavor, crispness and tenderness* to all vegetables. Would you know more about it, send for free text book "Food for Plants" to John A. Myers, 12 T John Street, New York. *Nitrate* for sale by

BALFOUR, WILLIAMSON & CO.,
27 William St., New York.

Fertilizers 1/2 Price

Nearly all the Fertilizer companies are in a Trust, which means higher prices and poorer goods for the farmer.

WHY NOT

make your Fertilizers at home with Powell's Prepared Chemicals? No trouble. More than twenty years' unequaled success. Write for pamphlet.

W. S. POWELL & CO.,
Dealers in Nitrate Soda, Muriate and Sulphate Potash, and other Agricultural Chemicals,
Baltimore, Md.

AGRICULTURAL • LIME

$1.00 PER TON.
FELLSWORTH LIME WORKS,
REEVES CATT, Agt., Bodley, Augusta Co., Va

Also No. 1 Rock Lime for building. Send for card with price-list.

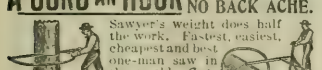


A QUICK, SHARP CUT
hurts much less than a bruise, crush or tear done with the
DEHORNING KEYSTONE KNIFE
the safest. Quick, sure cut. Cuts from four sides at once. Cannot crush bruise or tear. Most humane method of dehorning known. Took highest award World's Fair. Write for free circulars before buying.
Fully Warranted.
A. C. BROSIUS, COCHRANVILLE, PENN.

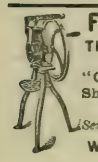


The Improved **CONVEX** and the Webster Calf **DISHORNERS**
Are the most practical instruments made for cutting all kinds, shapes and sizes of horns. Easiest operated; no crushing; cuts closer, smoother, more humane.
Illus. book free.
WEBSTER & DICKINSON, Box 70, Christiana, Pa.

A CORD AN HOUR NO WET KNEES. NO BACK ACHE.



Sawyer's weight does half the work. Fastest, easiest, cheapest and best one-man saw in the world. Cuts both ways.
Agents Wanted. Ask for Catalogue R
FAMOUS MFG. CO., CHICAGO, ILL.



For POULTRYMEN !
The "DAISY" BONE CUTTERS
The Best in the World.
"Gem" Clover Cutter. The $5 Shell and Corn Mill. Farm Feed Mills, Power Mills.
Send for Circular and Testimonials.
WILSON BROS., Easton, Pa.

SAVING THE COST OF LABOR.

SPENDING TOO MUCH TIME ON CULTIVATION WASTES ALL THE PROFITS.



PROFITS on vegetables depend more on the cost of labor in cultivating them than on any other one factor. You save time and you save the wages of hired help when you use such garden helpers as the Iron Age implements for plowing, sowing, hoeing, cultivating, raking, covering, hilling, etc. In buying a combination implement you get a valuable outfit of garden tools for the price of one, and the experience of thousands of vegetable growers proves that all the Iron Age tools are practical labor savers. Before sitting down to figure on saving cost in labor in growing vegetables either for market or for the home table, it is best to write for a copy of the Iron Age Book for 1900. It is a handsome catalogue sent free by the Bateman Manufacturing Co., Box 167, Grenloch, N. J. It describes all the implements having the famous "Iron Age" trade-mark, which have the reputation of being the most reliable in use, and it gives the description and prices of each. It describes the many uses of the Iron Age tools and contains hundreds of suggestions and hints that will help to place vegetable growing on a more profitable basis.

SWINE GROWING.

Raising hogs has of late grown to be a most important branch of farming. The returns made by the hogs when properly attended to bring in for the grower a large amount of ready cash. In fact, the most profitable animal on the market to day is the hog, and farmers in general are giving more attention to this line than ever before. Nearly every agricultural paper has a "Swine department," yet our observations lead us to say that every farmer would do well to take a good swine journal, especially devoted to swine, such as *Blooded Stock*, advertised in our columns. It is a business paper on practical lines, and devotes its pages to such items as are of vital importance to the every-day farmer. The March issue will contain articles from well-known writers, such as J. A. MacDonald, James Fisher, T. A. Stephenson, and others. This issue alone will be worth more than the price asked for several years' subscription to the paper.

The Page Woven-Wire Fence Company, Adrian, Mich., have for nine years past issued a paper called *The Coiled Spring Hustler*. The name has been changed to *Page Fence Age*, but it is the same "Hustler" as ever, devoted to the interests of Page Woven-Wire Fence, and full of information concerning it. It will be sent free to any farmer who asks for it. We can assure our readers that it is worth sending for. Ask also for their "Blue Folder," which gives complete descriptions of the different styles of Page Fence. When writing, please mention this paper.

NO crop can grow without Potash. Every blade of Grass, every grain of Corn, all Fruits and Vegetables must have it. If enough is supplied you can count on a full crop—if too little, the growth will be "scrubby."

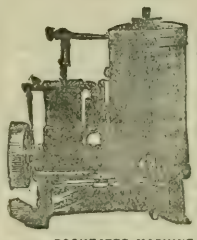


Send for our books telling all about composition of fertilizers best adapted for all crops. They cost you nothing.

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After Being on the Market TEN YEARS,

The ACME Engine Still Leads



For Churning, Cutting & Grinding Feed, Filling Silos, Sawing Wood, Elevating Water, and all Farm and General Uses where

Small Power is Required.

Fuel, Kerosene Oil.

No Skilled Engineer required.

ROCHESTER MACHINE TOOL WORKS,
No. 17 Frank St., Rochester, N. Y.

BAILEY'S HYDRAULIC RAM.

Runs 24 hours a day and 365 days a year.

40 year's experience.



Water for House, Water for Stock, Water for Irrigation.

Once started costs one cent per month. As simple as a wheelbarrow and as efficient as a Corliss Engine. Information and instruction in plain terms. Prices on Ram or complete outfit by return mail. Address

PRYOR W. BAILEY,
EXPERT Seneca Falls, N. Y.

RIFE HYDRAULIC ENGINE

Pure water delivered by muddy water as power.
Brook water used to pump spring water.
Absolute Guarantee.
Your Money Back if You Want It.
Send Your Conditions.



RIFE ENGINE CO., 120 Liberty Street, New York.

THE MILLION DOLLAR POTATO

Most talked-of potato on earth! Our Catalog tells—so also about Salzer's Earliest Six Weeks' Potato. Largest farm and vegetable seed growers in U. S. Potatoes, $1.20 and up a bbl. Send this notice and 5c. stamps for Big Catalog, F. 58

JOHN A. SALZER SEED CO. LA CROSSE, WIS.

IRON PIPE

WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet. ALL SIZES. WRITE FOR PRICES. Write for Free Catalogue No. 160 of merchandise for HOME, FARM AND FIELD—from Sheriffs' and Receivers' Sales. Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., AT HALF PRICE.

FITTINGS

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

The Chicago Steel Tank Co.,



193-195 South Desplaines Street, CHICAGO, ILL.,

Makes tanks of galvanized steel for storage, stock watering, creameries and dairies, Milk coolers, dipping tanks all sizes and shapes. Thrasher's wagon tanks, hog and sheep troughs and feed cookers. Satisfaction guaranteed. We are manufacturers. Agents wanted.



CHICAGO CORN SHELLER $1.

Send us one dollar and we will send you a corn sheller that will shell your corn as well as the more expensive machines on the market. (Mention this paper.)

Hennion & Hubbell, 343-345 Fulton St., Chicago

LIGHTNING WELL MACHY IS THE STANDARD

STEAM PUMPS AIR LIFTS GASOLINE ENGINES

WRITE FOR CIRCULAR F 58

THE AMERICAN WELL WORKS

AURORA, ILL. CHICAGO. DALLAS, TEX.



Use our machinery! It is the strongest. It takes the least power. Carries the heaviest tools. Drills much faster. Lasts longer and makes the owner more money than any other Drilling Machine on earth. Machines made for drilling any depth or diameter, and for Horse, steam or Gasoline Power.

LOOMIS & NYMAN, TIFFIN, OHIO.

PAINT TALKS—XXIV.

WHY COMBINATION PAINTS ARE ECONOMICAL.

The saving in first cost of a good combination paint over the cost of pure lead, is, of course, an item for consideration; but it is not the only item, nor in fact the most important item to be considered. The best combination paints cost, pound for pound, generally about one cent less than pure lead. This is not a great deal, but still it amounts to something on a large building. But when it is remembered that a pound of the combination paint will cover anywhere from one-fourth to one-half more surface than the pure lead, then we see that we effect a really important saving in selecting the former.

But it is in comparing the wear of the two classes of paint that we reach the fountain of the economy, involved in using combination paints. Pure lead will protect a building fairly well for three years at the longest. Even before the end of that time it is usually chalky and absorbent of moisture, promoting the decay of the underlying surface rather than enabling it to resist decay. The combination paints containing zinc white, however, if of the standard brands which can be obtained in every village of the land, afford perfect protection during periods ranging from five to fifteen years. They do not become porous or absorbent, and hence are protective during their entire life.

Here is the great economic advantage gained by the use of combination paints containing zinc; they preserve buildings effectually and they require renewal only at long intervals.

STANTON DUDLEY.

TO CLEAN STRAW HATS.

A nice straw or leghorn hat may be cleaned at home, and made to look like new. Fill a pail half full of warm suds—a tablespoonful of Gold Dust Washing Powder will make the right kind of suds and whiten the straw. Immerse the straw, moving it up and down until every fiber is wet; then lift it from the water, lay it upon a board or table, and brush it with a stiff brush thoroughly. After all the soil is removed, rinse in clean warm water; let it drip for a few moments, then iron it, with a thin cloth between; press the crown over a bowl or pail upside down, ironing on the wrong side to make it stiffer.

THE LAND OF BREAD AND BUTTER

Is the title of a new illustrated pamphlet just issued by the Chicago, Milwaukee and St. Paul Railway, relating more especially to the land along the new line it is now building through Bon Homme and Charles Mix counties in South Dakota. It will be found very interesting reading. A copy will be mailed free on receipt of two cent stamp for postage. Address Geo. H. Heafford, General Passenger Agent, Chicago, Ill.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

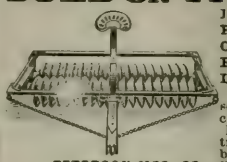


Lean's Harrow

Teeth can be made to slant forward or back—at any angle—instantly, without stopping the team. Does more work and more efficient work than any other harrow. All steel; strongest frame, lightest draft, most durable. Will save you its cost in one season. Descriptive circular free.

RODERICK LEAN MFG. CO., MANSFIELD, O.

SOLD ON TRIAL



Imperial Pulverizer Clod Crusher Roller and Leveler. Plainly described in circular. Sent free. Farmers may try it before buying.

PETERSON MFG. CO., Kent, Ohio.

YOU SEND NO MONEY



Until Goods Arrive!

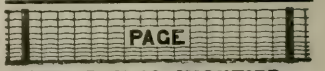
All Steel and Iron but the pole. Easily handled by two horses. Send for delivery prices on all sizes. Disc Harrows, Lever Harrows, 11-foot Seeders. EMPIRE MFG. CO 10 River St., Sterling, Ill.



ORNAMENTAL FENCE!

25 different designs, they are all steel and cheaper than wood fence. Special prices to Churches and Cemeteries. Write us for catalogue.

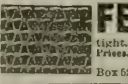
KOKOMO FENCE MCH. CO., 428 NORTH ST. KOKOMO, IND., U. S. A.



THE PEN IS MIGHTIER

than the sword, if the Pen is made of Page Fence.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO. Box 52. Winchester, Indiana, U. S. A.



POULTRY NETTING READ THESE PRICES

36 in. wide, 150 ft. long, roll, $2.25
48 " " 150 " " " 3 00
60 " " 150 " " " 3 75

Other widths in proportion.

Dow Wire Works Co., Louisville, Ky.

Farm Fence 18 TO 24C. PER ROD.

Buchanan Fence Co., Box 25, Smithville, O.

Eggs for Hatching.

Pure-bred B. P. Rock, S. C. Brown Leghorn and Black Minorca. Single sitting 60c.; two for $1.00. Miss S. M. HITER, Ellisville, Va. Louisa, C. & O. Ex. and M. O. Office.



Nothing else adds so much to the charm of the drawing room or boudoir as the softly radiant light from CORDOVA Candles. Nothing will contribute more to the artistic success of the luncheon, tea or dinner. The best decorative candles for the simplest or the most elaborate function—for cottage or mansion. Made in all colors and the most delicate tints by

STANDARD OIL CO.
and sold everywhere.

SAN JOSE SCALE and other insects can be controlled by using

Good's Caustic Potash Whale Oil Soap, No. 3.

It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, $2.50; 100 lb. kegs, $4.50. Half barrels, 270 lbs., at 3½c. per lb.; barrels, 425 lbs., at 3¼c. Large quantities, special rates. Send for circular.

JAMES GOOD,
514 to 518 S. Randolph St., PHILADELPHIA, PA.

MINOR'S FLUID.

King of Disinfectants.

For Ticks and Scab on Sheep, Lice on Horses and Cattle, Hog Cholera and Diseases of Poultry. Send for circulars.

W. E. MINOR & CO.,
48-50 Long St., CLEVELAND, O.

FRAZER

Axle Grease Best in the world.

Its wearing qualities are unsurpassed, actually outlasting 3 bxs. any other brand. Not affected by heat. Get the Genuine.

FOR SALE BY ALL DEALERS.



...CURES...
FISTULA, POLL EVIL,
In 4 to 16 weeks. When just forming usually cures without discharging, in four weeks. Humane and easy to give. Price, 50 cts. By mail, 60 cts. Treatise upon application

CLOUSE & STAMM, Chemists,
228 S. State St., Geneseo, Ill.

Keeley Cure

For Drunkenness and Drug Using.

Please write us. Correspondence confidential.

Our Illustrated Handbook Sent Free On Request.

THE KEELEY INSTITUTE, Dept. F., Greensboro, N.C.



Meat smoked in a few hours with
KRAUSERS' LIQUID EXTRACT OF SMOKE.
Made from hickory wood. Cheaper, cleaner, sweeter, and surer than the old way. Send for circular. E. KRAUSER & BRO., Milton, Pa.

WHAT IS BROMUS INERMIS?

Our attention has been directed to this wonderful new grass by L. L. May Co., St. Paul, Minn., whose advertisement appears elsewhere in this issue.

Bromus Inermis, or Brome Grass, while referred to above as being new, is not entirely unknown in this country, but it is in its native country of Russia that it is most highly appreciated. Its prime characteristics are its wonderful productiveness and ability to grow, thrive and produce abundant crops of pasturage and hay in dry, semi-arid sections and localities where other grasses fail signally. It is hardy almost beyond comparison and is not affected by drought, will not winter kill and cannot be flooded out. It grows as well in low swampy places as in the lighter dry upland where other grasses fail. This enables every farmer to make productive portions of the farm that would otherwise be waste land. It has been found that the yield is greater than alfalfa; that it will produce heavy crops on the lightest of soils; that one seeding will last under ordinary conditions for twelve years; that it grows best when seeded alone and not in combination with other grains, and that the food value when converted into hay is superior to timothy of the same quality.

There are many sections of the country where Brome Grass will prove of large value because of the excellent qualities enumerated above. In localities where there is only slight rainfall or where there is only a limited amount of water for irrigation purposes, it would seem especially wise to experiment with this grass. Write May & Company for any special matter they may have on the subject. We feel personally that a new forage crop that offers such promise deserves the most careful consideration and investigation.

THE END OF THE CENTURY CALENDAR.

The great progress of the printer's art in the nineteenth century is fittingly marked in the closing year by the artistic calendar we have just received from N. W. Ayer & Son, newspaper and magazine advertising agents, Philadelphia. True to their motto of "Keeping everlastingly at it," Messrs. Ayer & Son have so made this calendar, year after year, that a demand for it has sprung up that always quickly absorbs the edition. This calendar's proportions are commensurate with its dignity as an art work, but its size is determined solely by utility. The figures are of the generous dimensions that quickly catch the eye and make it a favorite with buiness men; there are also helpful suggestions accompanying each month's figures, and there is a rich ensemble of color and design. This edition will not last long; while it does, those who send 25 cents to the publishers will receive a copy postpaid.

Messrs. McCormick, the well-known makers of mowers and binders, send us a fine calendar, for which we return thanks. This house realizes the importance of keeping itself always before the public.

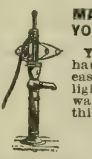
PLANT
Excelsior Cotton

Beats Klondike gold mines. A DISTINCT and NEW variety; most prolific cotton grown. Small seed; large bolls; cluster; superior lint. 1 bus., $1.25; 5 bus., $5.00. Limited quantity for sale this season.

C. F. MOORE, Bennettsville, S. C.
Mention Southern Planter.

SPRAY PUMPS

ALL BRASS.
$17 outfit for $6.50, express paid.
Will spray a 10 acre orchard per day. 100,000 in use. Satisfaction guaranteed or money refunded. Illd. catalogue free. Agts. make from $5 to $15 per day. New Improvements. Free Trial. Mention this paper.
P. C. LEWIS MFG. CO., Catskill, N. Y.



MAKES YOUR PUMP **Work Easy**

Yankee Pump Governors make the hardest pump work easy as the easiest. Windmills turn in the lightest breeze. Managing agent wanted for each county. Money in this for you. Write to-day. Dept. B.

BANE MANUFACTURING CO.,
55 W. Washington St., Chicago.



OLENTANGY INCUBATOR.
This Machine will hatch every fertile egg, so thousands testify. It is the best **Self-Regulating** machine made. **Brooders $5.00.** Catalogue free.
Address, GEO. S. SINGER, Cardington, O.

The IMPROVED
VICTOR Incubator
hatches all the fertile eggs; is simple, durable and easily operated; 168 page catalogue containing information and testimonials. Sent free. GEO. ERTEL CO., QUINCY, ILL.



A SONG OF SUCCESS
would make another good name for our
20TH CENTURY POULTRY BOOK
It deals with all those subjects which tend to success in the poultry business, treated by the masterful hand of experience. No subject neglected, it hits them all. It's practical; can be adopted by everybody in the poultry business. Tells about the renowned **Reliable Incubators and Brooders.** Book sent for 10c to cover postage.
Reliable Incubator & Brooder Co., Box B 111, Quincy, Ill.

TURKEYS

PURE BRED BRONZE

Some very fine ones still for sale. I will keep a flock of 25 hens this season to supply orders for EGGS. Last year I could not fill them all. Also B. P. Rocks and Pekin Ducks.

SAM'L B. WOODS, Jr.,
Arrowhead Stock Farm, Charlottesville, Va

BLACK LANGSHANS

Eggs, $1.00 per 13; Cockerels, $1.00 and up. Stamp for reply.

M. A. OLNEY, Coleman's Falls, Va.

Mammoth Bronze Turkeys..

Also a few of the famous "Farmer's Daughters" strain. All pure-bred; very fine and healthy. $3.00 a piece.

Pantops Poultry Yards, Charlottesville, Va.

..RIDGEFIELD POULTRY YARDS..
BUFF PLYMOUTH ROCKS, BLACK MINORCAS..
Eggs in season, $1 00 per 15.
A. H. GATLAND, PILKINTON, VIRGINIA.

EGGS FOR HATCHING.
From thoroughbred S. C. Black Minorcas, Houdons and Barred Plymouth Rocks. 50c. per 15. It is general y conceded that Minorcas lay more eggs than any of the feathered tribe.
A. G. HILL,
Green Springs Depot, Louisa Co., Va.

FOR SALE—Pure-Bred
Bronze Turkeys,
From prize-winning stock of Kentucky and Maryland. Price, Cocks, $4.50; Hens, $4.50; Trio, $5 00. Address,
WILLIAM. S. WOODS, Ivy Depot, Albamarle Co., Va.

Green Valley Poultry Yards.
LT. BRAHMAS, WHITE AND BARRED PLYMOUTH ROCKS, S. C. B. LEGHORNS, and WHITE WYANDOTTES, 75c. and $1.00 each. M. B. TURKEYS, $5 00 pair. INCUBATOR EGGS, $3 00 hundred. C. H. BENNETT,
McDonalds Mills, Va.

VICTOR POULTRY AND DUCK RANCH,
HIGHLAND SPRINGS, VA.
PEKIN DUCKS (Rankin Strain)
$1.00 each. Eggs, $1.00 per 13.
S. C. BROWN LECHORNS,
$1.00 each. Eggs, $1.00 per 15.
BARRED PLYMOUTH ROCKS
$1.00 each. Eggs, $1.00 per 15.
Eggs ready for shipment. G. W. GRAVES & BRO

Sherwood Chickens...
FOR SALE.
$1.00 each. Eggs in season, $1.25 per fifteen Also a "PRAIRIE STATE" Incubator in good condition, cheap. For particulars apply to
MISS BELLE BROOKE,
Box 618, Staunton, Va.

..OLD DOMINION POULTRY PLANT..
Barred P. Rocks and White Wyandottes.
Only $1 50 setting of 15 eggs. A few choice Cockerels on hand. Birds bred for utility farm range. Address,
J. H. SLEDD, - Negro Arm, Va.

Registered **ESSEX SWINE.**
We have the best combination of blood known.
M. Bronze Turkeys, S. L. Wyandottes, S. C. Brown Leghorns. Eggs $1.00 for 13. My birds and swine won 1st Prizes at S. C. State Fair.
C. F. MOORE, Bennettsville, S. C.
Mention Southern Planter.

Wanted—**A DEVON BULL**
(Thoroughbred) about eighteen months old. G. W. PATTESON, Camm, Va.

THE SOUTHERN STOVE WORKS.

The Southern Stove Works of Richmond, Va., are selling direct to the farmers at factory prices, which means a big saving.

Something the farmers should appreciate—and we think they do—judging from the orders received.

This Company manufactures some of the best stoves made in the South, among them the celebrated "Fitz Lee Cook Stove," which has few, if any, equals, and no superiors.

SURPLUS STOCK OF FINE FOWLS

Mr. T. O. Sandy, whose advertisement will be found in this issue, tells us that he has some twenty roosters and forty pullets of the finest strain of Plymouth Rocks still left over, and that in order to clear them and make room for his breeding pens he is willing to sell them at very low prices, say from $1 to $1.25 per head. This is a fine opportunity to get good breeding stock at little more than killing price.

IRON AGE CULTIVATORS.

The Bateman Mnfg Co, the makers of the celebrated Iron Age implements whose advertisement will be found in this issue, make, in our opinion, one of the best corn cultivators, especially for small areas, which is on the market. If farmers would use these cultivators instead of the plow they would both save time and secure better results, and the cost of the same is so low that it would be saved on an acre of corn in one year.

WASHING FLANNELS.

The following method has been used with unvarying success for years. Use water that is as hot as you can bear your hands in; dissolve a little Gold Dust Washing Powder in the water, and add enough soap to make a strong suds. Wash the flannels through two suds prepared in this way, plunging them up and down, and rubbing gently between the hands to get clean. Soap should never be applied directly to the flannel. Rince through clear water of the same temperature as used for the washing; place them smoothly on a line in the sunshine and air.

BROMUS INERMIS.—6-TON HAY.

That sounds well—6 tons. That is what Salzer's Bromus will give you every time, no matter where you live; and Victoria Rape costs but 25 cents a ton to grow. The Million Dollar Potato is immense! Largest Vegetable Seed Growers in America. Send this notice with 10 cents for Farm Seed Samples and Catalog, to John A. Salzer Seed Co., La Crosse, Wis.

General advertisers will find it to their advantage to correspond with the thirty-years-old advertising agency of Lord & Thomas, Chicago and New York. This great firm is thoroughly informed as to the mediums to be used for reaching any class of buyers, can give reasonable rates on any publication in the world, and can tell you the best methods to employ to "advertise judiciously."

Poland-China Hogs,
Coach Dogs,
Foxhounds,
Collies and Greyhounds,
Belgian Hares,
Book on Hares free.
White Leghorns,
Black Minorcas,
Barred Plymouth Rocks,
Pit Games,
Pekin Ducks,
Pigeons,
White Holland Turkeys.
Two 200-Egg Incubators.
Eggs for hatching a specialty.
JOHNSON & GOODE,
BOYDTON, VA.

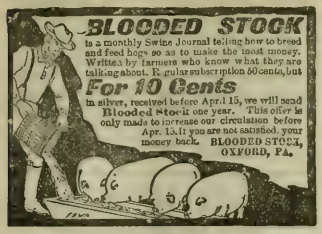
WANTED.
To Exchange Trio of PEA-FOWLS for trio of pure BRONZE TURKEYS.
To Sell two BROODERS.
To Sell pure BARRED PLYMOUTH ROCK chickens and eggs in season.
Mrs. W. F. JACKSON,
"Olga" P. O., Amelia Co., Va.

FOR SALE.
SHORTHORN BULL
"FREE COINAGE," No. 122714.
Bred by W. H Garner, Winchester, Ky. Red and white. Four years old; quiet. Don't want to inbreed is the reason for selling.
W. B. G. SHUMATE, CALVERTON, VA.

SHORTHORNS FOR SALE
A choice lot of bull calves from a large and splendid herd of cows and the best Scotch bulls—one of them for sale.
W. W. BENTLEY, Pulaski City, Va.



FOR SALE..
JACKS, JENNETS and PONIES. Fine JACKS a specialty. Enclose stamp for new catalogue.
W. E. KNIGHT & CO.
NASHVILLE, TENN.



20 YOUNG JERSEY HEIFERS For Sale Cheap.

None over 18 months old. Raised from my registered cows, some of which have made 275 lbs of butter per year each. Were raised for my own use in my dairy herd, but shortness of feed, caused by drought, places them on the market. Quick buyers will be offered extremely low prices.

A. R. VENABLE, Farmville, Va

ELLERSLIE FARM

Thoroughbred Horses

AND SHORTHORN CATTLE,

Pure Southdown Sheep and Berkshire Pigs.

FOR SALE. R. J. HANCOCK,

CHARLOTTESVILLE, VA.

ESSEX PIGS.

I have a lot of young ESSEX PIGS from 8 weeks to 4 months old FOR SALE. Registered and of the finest strains. Reasonable prices. Apply to

W. MILES CARY, Randolph, Va.

THOMPSON & TRIMBLE,

SWOOPE, AUGUSTA CO., VA.

Breeders ..of.. **Shorthorn Cattle and Shropshire Sheep.**

...CORRESPONDENCE SOLICITED

FOR SALE.

Thoroughbred registered HOLSTEIN BULL,

"SIR NETHERLAND OF MAPLES"

4 yrs. old. Will sell or exchange him for a well bred mare. Sold for no fault, only to prevent inbreeding.

T. O. SANDY, Burkeville, Va.

Small Farm of 190 acres, on Southern Ry., 45 miles from Richmond, FOR SALE. Land is level; one-half in original pine and about 30 acres cleared. Fine tobacco land and good situation for dairy. Price, $700.

Address "SOUTHSIDE,"

Care SOUTHERN PLANTER.

THE ACME HARROW.

We invite the attention of our readers to the advertisement of Duane H. Nash, Millington, N. J., who is again advertising his celebrated Acme Harrow. This implement is one of the best pulverizing and clod crushers on the market. It is made of cast steel and wrought iron, and is practically indestructible. The sizes range from three to thirteen and a-half feet.

Send for catalogue and booklet, and "Ideal Harrow" free, and mention this paper.

THE BROWN CULTIVATOR AND HARROW.

The Brown Manufacturing Company, Zanesville, Ohio, are advertising in another column their genuine walking cultivator, and their celebrated drag harrow.

Mr. Charles E. Hunter, Richmond, Va., will be pleased to quote prices and send circulars descriptive of same on application.

VICTORY POULTRY FOOD.

Our readers have from year to year had their attention called to the merits of a preparation put up by the Polk Miller Drug Co., whose advertisement you will find in another portion of this journal. We would especially remind you, that they do not claim it to be literally a *food*, as the name implies, but a *medicine* composed of more than half dozen ingredients scientifically compounded. It is highly endorsed by all the successful poultry raisers of this and neighboring States, and will be found especially efficacious in Cholera and Gapes—two of the most troublesome diseases a poultry raiser has to contend with. We commend it to your favorable notice.

SEEDS.

We invite the attention of our readers to the advertisement of Peter Henderson & Co., New York City. This well known firm sells its seeds only to the consumer; the middle man is, therefore, left out of the transaction, and the purchaser has the advantage of getting seed from first hands.

Send ten cents in stamps and mention this paper, and get their handsome 190-page catalogue, entitled "Everything for the Garden."

TO PIPE SMOKERS.

If you wish a cool, pleasant and satisfactory smoke, you should try "Mahogany Blend," manufactured by P. T. Conrad, Richmond, Va.

An advertisement of this "fragrant weed" is found elsewhere in this issue, and our readers are invited to send ten cents for a sample package.

VIRGINIA HOMES.

You learn all about Virginia lands, soil, water, climate resources, products, fruits, berries, mode of cultivation, prices, etc., by reading the *Virginia Farmer*. Send 10 cents for three months subscription to

FARMER CO., EMPORIA, VA.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

ASA B. GARDINER, Jr., Manager,

GLENCOE, MD.

The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.

We mail a little "Book of the Herd" on request.

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one-half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va.

WALTER WATSON.

"NORFOLK, VA."—Near the Sea.

There are cheap and beautiful homes in the **"Sunny South,"** near the sea, and near that thriving seaport city, **Norfolk, Va.**, for thousands of people who want happy homes in a mild, healthful, and delightful climate, a kind and productive soil, the very best markets in the world, the very lowest freight rates, good social, educational, and religious privileges, and the greatest number of other both natural and acquired advantages, to be found in any other one section of the Union.

The "CORNUCOPIA" tells you all about the beautiful section of country around Norfolk, Va. Send for (free) sample copies.

Address "CORNUCOPIA," 212 Main St., Norfolk, Va.

ORGANIZED 1832.
THE
VIRGINIA
FIRE & MARINE
VIRGINIA
Insurance
Company.

RICHMOND, VA.

ASSETS, - $800,000.

DIRECTORS:
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(State A. & M. College.)
AT BLACKSBURG, VA.

30 Instructors. Thoroughly equipped Shops, Laboratories, and Infirmary. Farm of 400 acres. Steam Heat and Electric Lights in Dormitories. Degree courses in Agriculture; Horticulture; Civil, Mechanical and Electrical Engineering; Applied Chemistry and General Science. Shorter courses in Practical Agriculture and Practical Mechanics.

Total cost of session of nine months, including tuition and other fees, uniform, board, washing, text-books, medical attendance, etc., about $195.00. Cost to State Students, $165.00. Session began Sept. 21st, 1899. For catalogue apply to

J. M. McBRYDE, Ph. D., LL. D., President.

We Bind...

Your Magazines, Southern.. Planters, or any other books

PRICES LOW.
Satisfactory work guaranteed.

Job Printing Neatly Executed.

S. B. ADKINS & CO.,
RICHMOND, VA.

A Gentleman's Home

Near Richmond, Va., with railroad depot within 400 yards of the house: 100 acres. First-class improvements; hot and cold water; bath and closet in house. Water in barn-yard and garden Fine orchard of all kinds of fruit. Well stocked with sheep. Plymouth Rock and game chickens, Pekin Ducks, and a superior pair of large mares; wagons, etc, all new. Place complete, with furniture, etc, $6000.

Address "M." Care SOUTHERN PLANTER.

FORAGE CROPS, BY PROF. THOMAS SHAW.

Permit me to invite attention to a new book, entitled Forage Crops, written by Prof. Thomas Shaw, and published by Orange Judd Co, New York.

It is a book that immediately strikes the reader as being practical and sound. Within its three hundred pages is condensed a discussion of all the important annual forage crops grown in the United States. In it the author has not only shown the great benefit to be derived from growing the various forage plants and pasturing them off in the field, but tells of the soils to which they are adapted, the rotation in which they should be grown, the preparation of the land, the time of sowing them, and the methods of doing the same, the modes of cultivation and of pasturing when grown.

Little as the fact may be appreciated, the South and Middle South are the regions where some of the best forage crops, such as corn, sorghum, cow-peas, soy beans, sand vetches, artichokes, etc., come to the greatest perfection, and where they can be made to come in such succession as to give abundant pasturage during the greater part of the year. To get a clear idea of how to do it one cannot do better than read "Forage Crops." No other work has come to my notice that treats the subject in so instructive and concise a manner.

ALBERT R. BELLWOOD.
Chesterfield Co., Va.

Mister Jackson, Edditer of Suthern Planter:

DEER SIR,—You have certainly painted the planter red if not the town, in celebratin its sixtyith birth day. Your January number is certainly bully an' I red every word of it and me an' my folks hoorayed fer the planter—long may she wave! My *venerable* frend Mr. Sam Woods took very hansomely the joke you played on him in calling on him to stretch his memory back, sixty years!—Why, he s a *youngster* compared to we old ones, but may be he's got more sense; but he rit you a fine letter anyhow. why didn't you call on me, fer I'm one of the "*oldest*" inhabitants an' could have told you about when the first mule was invented, an' I have the old farmers Register from way back—Well now, may the planter live long and prosper—considder me a life long suscriber—and all my frends too—

Ever yours trooly
BILL SCRUGGS
of Scruggstown Va

"DEEDS ARE FRUITS,

Words are but leaves." It is not what we say, but what Hood's Sarsaparilla does that tells the story. The many wonderful cures effected by this medicine are the fruits by which it should be judged. These prove it to be the great, unequalled remedy for dyspepsia, rheumatism, scrofula, salt rheum, catarrh and all other ailments due to impure or impoverished blood.

Hood's Pills are non-irritating, mild, effective.

When you write to an advertiser, mention THE SOUTHERN PLANTER.

Virginia Farms

All prices and sizes. Free list on application.

WM. B. PIZZINI CO., Richmond, Va.

VIRGINIA FARMS

$3 PER ACRE AND UPWARDS.
EASY PAYMENTS. CATALOGUE FREE.
GEO. E. CRAWFORD & CO., Richmond, Va.

GO SOUTH

YOUNG MEN!

It is the field for the Agriculturist, Horticulturist and Manufacturer, unequalled by any other portion of the United States

THE JAMES RIVER VALLEY COLONIZATION AND IMPROVEMENT CO. offers superior advantages to intending settlers. Send stamp for Hand Book and list of lands. Address

W. A. PARSONS,
819 E. Main St., Richmond, Va.

FOR SALE.

"Rosegill," An elegant estate of 605 acres (400 open) in Middlesex County, Va., on the Rappahannock River. Splendid land and forests of oak, chestnut and pine. Oyster front, fishing and game. Ten-room mansion with portico on four sides. Necessary barns and out-houses. A paying grain mill goes with the farm. Baltimore and Norfolk steamers pass daily. Liberal terms and a low price. A prospectus with fuller information and references mailed on request. Apply to

G. G. TEMPLE,
DANVILLE, VIRGINIA.

FARMERS' LIBRARY!

SOUTHERN PLANTER, - 50
VEGETABLE GROWING IN THE SOUTH, $1.25
FERTILITY OF THE LAND, $1.25
FEEDS AND FEEDING, - $2.00
TOBACCO:
How to Raise it, etc., 25
FOOD FOR PLANTS, - - 10
$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

THE INAUGURATION OF WASHINGTON'S STATUE, FEB. 22, 1858.

By M. W. Early, Lynchburg, Va.

As Washington's birthday is close at hand, it will not be out of place for me to offer some reminiscences of the unveiling of his equestrian statue in Richmond on the 22d of February, 1858.

At that time I was a child living on the upper James river, about a hundred miles above Richmond, and my father carried me to that city by canal. The planters thought they were making a great stride in progress when this canal was made, and they were enabled to travel by packet boat instead of by a private conveyance or stage-coach, and to send their produce by freight-boat instead of bateaux. The packet-boat offered us a slow, but pleasant and picturesque mode of travel. With agreeable company on board, good fare, and a lovely country unrolled before us, the trip did not seem tedious, though we travelled only four miles an hour

The 22d of February, 1858, was a very inauspicious day, as far as the weather was concerned It rained and sleeted relentlessly But nothing could dampen the ardor of the thousands who had thronged to Richmond to do honor to our most illustrious hero

There was quite an imposing military array, consisting of military companies from Richmond, and from other cities and towns, including the Lexington Cadets.

The procession formed and marched, the crowd thronged around the monument, and all the ceremonies pertaining to the inauguration of the grand equestrian statue were duly performed

Mr. John R. Thompson, one of the most distinguished of our antebellum Virginia authors, recited on this occasion a poem of his own composition.

ODE ON THE UNVEILING OF WASHINGTON'S EQUESTRIAN STATUE, IN RICHMOND VA., ON THE 22ND OF FEBRUARY, 1858.

Composed and Recited by John R. Thompson.

Transcribed from an old copy (published in a Richmond paper, February 23rd, 1858).

By Mary W. Early, Nelson Co., Va.

Virginians! here with canon's deafening roar,
And joyous throb of drum,
From Mountain gorge, and from Atlantic's shore,
This hallowed day we come.

'Tis one of Freedom's Sabbaths, and we give
The time to Freedom's praise,
As here in bronze that almost seems to live,
Our hero's form we raise.

Oh, it is well that glorious form should grace
Our own Capitoline—
Henceforth to all a consecrated place,
That holds a sacred shrine.



Protection FOR PLANTERS

Seed is the planter's ammunition, and good seed is just as important to the man behind the plow as good ammunition is to the "man behind the gun."

Our 1900 Catalogue of EVERYTHING FOR THE GARDEN is a 190-page book, 9x11 inches, containing over 700 engravings and 6 superb colored plates of Seeds and Plants—a perfect mine of information on garden topics. To give our Catalogue the largest possible distribution, we make the following liberal offer:

EVERY EMPTY ENVELOPE Counts as Cash.

To every one who will state where this advertisement was seen, and who encloses us 10 cents (in stamps), we will mail the Catalogue, and also send, free of charge, our famous 50-cent "Harvest" Collection of seeds, containing one packet each of New Large-flowering Sweet Peas, New Giant Pansy, New Giant Comet Asters, White Plume Celery, French Breakfast Radish and New Freedom Tomato, in a red envelope, which when emptied and returned will be accepted as a 25-cent cash payment on any order of goods selected from Catalogue to the amount of $1.00 and upward.

PETER HENDERSON & CO.,
35 AND 37 CORTLANDT ST., NEW YORK.

Sunny Bank Poultry Ranch

Barred Plymouth Rocks,

..EXCLUSIVELY..



SIR WALTER.

Nothing in our yards but the **purest strains extant,** viz.: Thompson, Bradley Bros. and Miles. We are now booking orders for EGGS for hatching, 15 for $1.00; 100 for $5.00 **We pay express charges** on all orders amounting to $3 or over,

For the First Ten Orders received after February 1, we will **give free** one sitting of eggs with each order. The names from whom we receive the first ten orders, will appear in the *Southern Planter.*

REMEMBER, you can order now, and have your eggs shipped any time during hatching season. Eggs are carefully selected, packed and shipped in the latest patent box, made especially for the purpose. **A few Cockerels for sale, $1. each.**

GARNETT BROS., Mitchells, Va.

HENS BRED FOR LAYING

PLYMOUTH ROCK (BARRED) INCUBATOR EGGS, highly fertile, for vigorous chicks—a specialty. Instead of adding other breeds, I have for years bred this strain in addition to our noted show birds of the same breed. Interesting illustrated catalogue free. Fine references. Moderate prices. Improve your flock and make it pay.

GEO. HARRISON MORRIS, Ashland, Va.

The pomp of pennons, scarfs and tossing plume,
Is fitly here displayed;
Scattering the tints of summer's richest bloom,
Upon the bright parade.

And worthy is it that with noble speech,
Which glows with vital power,
The laurel crowned orator should teach
The grandeur of the hour.

While yet in reverent mood, the poet brings
Around the brilliant throng,
What he would never give to flatter kings,
His modest meed of song.

Not queenly Athens from the breezy height,
Where ivory Pallas stood,
As flowed along her streets in vesture white,
The choral multitude.

Not regal Rome, when wide her bugles rolled
From Tagus to Cathay,
As the long triumph, rich with Orient gold,
Went up the sacred way.

Not proud basilica nor minster dim,
Filled with war's glittering files,
As battle fugue or coronation hymn
Swept through the bannered aisles,

Saw pageant, solemn, grand or gay to view,
In moral, so sublime,
As this which seeks to crown with homage due,
The foremost man of time.

Then let the gun from out its peaceful smoke,
Its thunder speak aloud,
As when the rainbow of our flag first broke
Through battle's rifted cloud.

Peal, trumpets, peal! Your strain triumphant lend,
To stir the wintry air,
And upward to the throne of God as send
The frankincense of prayer.

Not ours, but His the glory ever be,
While yet the ages run,
Who, that His favored people might be free,
Gave earth a *Washington*.

FIRE INSURANCE.

In this issue will be found the advertisement of the Farmers Mutual Benefit Association, to which we invite attention. The directors are Virginia farmers, and the business is confined strictly to farmers' risks.

PLYMOUTH ROCKS.

We invite attention to the advertisement of Messrs. Garnett Bros. Mitchells, Va. This firm is offering stock and eggs of the very best strains at low prices.



IT HOLDS UP YOUR HAT

Don't you remember how your father used to test his grass and grain in this way? When it held up the hat it was always regarded as being a satisfactory and profitable "stand."

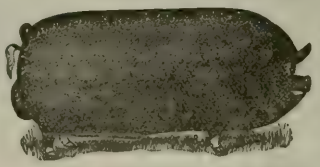
...THIS...

BROME GRASS

Surpasses Timothy in nutrition. Outyields Alfalfa. Yields four to five tons per acre. One sowing lasts 12 years. Grows well in light soil, or wet swampy land. Has no equal for arid regions. Drouth will not kill it. Animals enjoy it green or dry. Gives as much food in one month as Alfalfa does in three. Greatest boon ever offered as it thrives in any climate, under any conditions and makes productive what would otherwise be waste land. It is doubtful if the supply of seed this year will meet the demand, so great is the call already from States where hay is the essential crop. Price: Grade A—1 lb., 30c; 3 lbs., 85c, prepaid. 18 lbs., enough for one acre, $2.60. 100 lbs., $13.00. Send for mammoth descriptive catalogue with treatise on cultivation and comparative food values of Brome Grass and Timothy. Address. L. L. MAY & CO., Seed Growers, ST. PAUL, MINN.

A Union of England and America

THE MUCH MOOTED QUESTION SETTLED.



N. BENJAFIELD, at Motcombe, Shaftesbury, England, and THOS. S. WHITE, of Lexington, Va., can explain this Union. N. Benjafield stands at the top for thoroughbred English Berkshires in his country, and as Thos S. White got his start from said Benjafield, then, of course, the said White has the best blood in America. Fancy Pigs, but not fancy prices, now before the puplic.

Write to **THOS. S. WHITE, Lexington, Va.**

41 Pigs now Ready for Shipment. Some Ready for Service; Boars and Sows.

GASTON STOCK FARM.

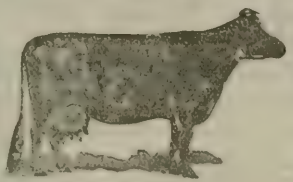
Holstein-Friesian and Jersey Cattle.

Having selected my foundation stock from the best, I can offer animals of each breed of highest breeding and individual merit, at moderate prices, containing the blood of the best families, and bred with great care.

I am prepared to sell HOLSTEIN BULLS, and BULL CALVES and JERSEYS of either sex.

JNO. U. DETRICK, Somerset, Va.

Thoroughbred Holstein-Friesians



(Netherlands, Pieterjes, and Clothilde) All rich, heavy milkers, and typical representatives of the breed and strains.

REGISTERED - BERKSHIRES.

"MAYOR OF BILTMORE" Heads my Herd.

Finest Stock at Reasonable Prices. Also English Beagle Dogs, Brown Leghorn and Plymouth Fowls.

WRITE ME FOR PRICES.

N. & W. AND SOUTHERN RAILWAYS.

T. O. SANDY, Burkeville, Va.

SUNDAY AFTERNOONS.

MARY W. EARLY, LYNCHBURG, VA.

The great problem to be solved about Sunday, it seems to me, is how to steer between two opposite dangers, that of making the day one of Puritanical gloom, or of making it too secular. A strong reaction has set in against the old rigid Puritanical mode of spending the day, and this reaction threatens to carry us too far the other way, so at present there seems more danger of our being too lax than too rigid in the observance of Sunday. The large influx of foreigners into our country is doubtless one cause of the increasing tendency we see to secularize the Sabbath. The French, Germans and Italians are very lax in their ideas of keeping the Sabbath, and we can trace the influence of their ideas in all places in our country, to which they have moved in considerable numbers; but it seems to me that it is more incumbent on them to conform to our ideas and customs than for us to conform to theirs—inasmuch as they are immigrants in our country and not we in theirs. The Anglo Saxon and his descendants are Sabbath reverencing people, and I trust that no influx of foreign population will turn us aside from respecting and observing God's holy day; but the danger is at our doors, if not within them, and we must guard against it, both in behalf of ourselves and our children.

It seems to me that those who dread having their children find Sunday tedious do not realize the immense, I may say, unlimited resources of the Bible for interesting children. By the divine Providence of the Lord, the narratives of the Bible (of the Old Testament especially) are so constructed as to peculiarly delight an I interest children. If we select judiciously, we will find no difficulty in enchaining their attention. About the Bible, as about other kinds of reading and study, the interest is cumulative and progressive. We will have to give it to our children with their daily bread, if we want their minds really nourished by it. From the busiest day we should try to snatch time for one chapter, or a few verses; only in this way can the child's mind thoroughly assimilate its contents, and be prepared for a longer reading on Sunday without a sense of tedium. An occasional detached chapter is not sufficient. If it is your rule to read no more than this, the children will soon grow to feel it is enough, and so will you yourself, whereas by training them differently they will learn to fix their attention on chapter after chapter, wisely chosen. The best way to read the Bible (when you have leisure, as on Sunday afternoons), is to read aloud a connective narrative, as for instance the entire history of Joseph and his brethren (most beautiful and pathetic of histories!) or of the Egyptian plague, Exodus of Israelites from Egypt, or a large portion of the history of Saul or David, or some other scriptural character. For an hour or more at a time I have seen children listen with unabated interest to these sacred histories, and if you question them closely afterwards, and discuss with them and explain to them the incidents you have just read,

"Housework is hard work without Gold Dust"

Washing Dish Cloths

Kitchen cloths must of course be washed daily, otherwise they harbor grease and odors and become unhealthy. They should be made of knit-crochet-cotton, in a square of suitable size. When you wash them, if you will add a tablespoonful of

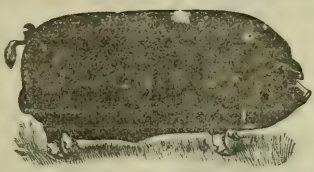
Gold Dust Washing Powder

to the hot water it will cut the grease and clean them in half the time; dry them out in the sunshine and air.

The above is taken from our free booklet "GOLDEN RULES FOR HOUSEWORK" Sent free on request to

THE N. K. FAIRBANK COMPANY,
Chicago, St. Louis, New York, Boston.





ADMIRAL, 42159.

POLAND-CHINAS.

Having purchased a part of Mr. S. S. Bradford's herd, and made several additions to my own from the leading breeders of Ohio, I can furnish select pigs not related to those previously shipped and sired by my fine young boars, "ADMIRAL" 42159, and "COMMODORE," 42747. Sows in pig and young boars and sows of all ages. Send to headquarters and get the best from the oldest and largest herd of Polan I-Chinas in the State at one-half Western Prices. Address,

J. B. GRAY, Fredericksburg, Va.

M. B. ROWE & CO.

FREDERICKSBURG, VA.

JERSEY and GUERNSEY CATTLE, both young and old, male and female, always on hand and for sale.

BERKSHIRE HOGS—Young sows now ready. Pigs, $10 per pair.

BRONZE TURKEYS, LIGHT BRAHMA, PLYMOUTH ROCK and BROWN LEGHORN FOWLS. PEKIN DUCKS.

GREAT DANE-MASTIFF PUPPIES, very large, fine guards, $10 each. SHEPHERD and FOX TERRIER PUPPIES, $5 each.

GILLETTE HORSE CLIPPING MACHINES.



"MODEL B" $20, WITH 2 CUTTERS.

OVER 20,000 MACHINES SOLD IN EUROPE.

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The Royal Mews, Royal Stables,
H. R. H. The Duke of York,
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OVER 60,000 MACHINES SOLD IN UNITED STATES.

A Few United States References.

F. W. Vanderbilt, Walter H. Webb, J. Mc. Twombley, Charles Broadway Rouss, Henry Hilton, C. R. Flint, W. R. Grace, Henry Seligman.

Send for Catalogue, showing our different styles.

EXTRA CUTTERS, $2. ALL KINDS OF CLIPPERS GROUND, 50c.

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their interest and improvement will be greater. These quiet Sunday afternoons, when the mother sits reading and expounding the Word of God to her children, are the most peaceful and truly happy of her life. If she can follow or intersperse the reading with the singing of hymns, with organ or melodeon accompaniment, the children joining in the singing, it will bring them into a still more pleasant and tranquil frame of mind.

But although training in reading the Bible frequently and regularly will enable us to keep our attention fixed on it, and our interest awake in it a long time on a stretch, yet still it is well to relax our minds on fine and improving secular reading, after having first read the Bible with reverence and diligence. I see no reason why young people should not read "Youth's Companion," "St Nicholas," or some other improving periodical or book, after the Bible has had the first and most prominent part in the Sunday reading. While I think it a waste, or even profanation of the Sabbath, to spend it in reading trashy, sensational novels, I think we may innocently relax our minds on a Sunday afternoon by reading an elevating class of fiction, such as Miss Muloch's, or George Eliot's "Romola," or other ennobling works of that class, or we may read fine periodicals that keep us in touch with the modern current of thought, feeling and progress. Few things could be more restful to the tired business man or thrifty housewife, neither of whom can snatch much time for reading during the week.

Another suitable way to spend part of Sunday afternoon is for the father, mother and children to take a forest stroll, when circumstances permit it. What time and place could be better for laying impressions of God's love, wisdom and power in the minds of our children than on a spring evening, amidst the budding flowers, joyous birds' songs, and fresh young green of the forest.

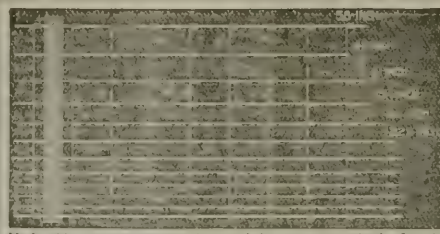
"The groves were God's first temples," and we cannot do better than to lead our children thither on his holy day and teach them to

"Look up through Nature to Nature's God."

Another thing we can do, without breaking the Sabbath, write loving, cheering letters to father, mother, brother, sister, or child who may be absent from us. Never write a business letter on Sunday, except under some extraordinary pressure that cannot be set aside; but it is consonant with the peaceable and loving spirit of the Sabbath to use it to write greetings of affection to our loved ones afar off.

In the foregoing article I have considered appropriate ways of spending Sunday afternoon, rather than the whole day, simply for the reason that most persons who are in access of a church will spend Sunday forenoon in attending its services.

THE CYCLOPEDIA OF AMERICAN HORTICULTURE, by Prof. L. H. Bailey, in four quarto volumes, illustrated by over 2,000 engravings. This work is only issued to subscribers. For price and particulars apply to Macmillan & Co., the publishers, New York.



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Made of large wire, best spring steel, heavily galvanized. Provision made for expansion and contraction, so it is proof against all animals and all changes of weather. As nearly everlasting as anything on earth can be.

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C. C. Taliaferro,

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"MOUNT SHARON" STOCK FARM.

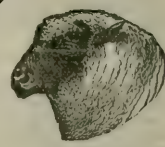
Red and Grade HEREFORD CATTLE

Registered SHROPSHIRE SHEEP.

Registered POLAND-CHINA PIGS.

BRONZE TURKEYS and MUSCOVY DUCKS





NOW OFFERS FOR SALE:

HEREFORD CATTLE.—Calves, entitled to registration, $50 to $75. Calves by "Sir Edward" grades, $20 to $30.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $12.50 to $20. Ewes, one year to three years' old, $10 to $12. Buck Lambs, delivered July 1 to 15, $7.50. Ewe Lambs, delivered July 1 to 15, $5.50.

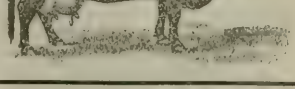
POLAND-CHINA HOGS.—Pigs, six weeks' old, $5. Pigs, three months, $6.50. Pigs, five months and over, $9 to $15.

BRONZE TURKEYS.—Pairs, $6; trios, $8.50. Eggs, per sitting, $2.50.

PLYMOUTH ROCKS.—Pairs, $2.25; trios, $3; Eggs, per sitting, $1.

MUSCOVY DUCKS.—Pairs, $1.50; trios, $2.25. Eggs, per sitting, $1.50.

WILLIAM L, Jr., No. 21058, half brother of Axtell, is now in the stud, and will serve limited number of mares for $25 the season. Mares boarded at lowest figures. Colts by William L, Jr., 21058, one, two and three years' old, for sale at lowest cash prices.



SOUTHSIDE STOCK STUD,

ON ROANOKE RIVER, IN MECKLENBURG CO.

Trotting Horses, Red Polled Cattle, Dorset Horned, Shropshire and Hampshiredown Sheep, Berkshire Hogs, Pedigree Llewellyn Setters and Scotch Collie Dogs.

All Stock Thoroughbred and Registered.

GEO. B. FINCH, Prop., Boydton, Va.

ROCK HILL HERD.

A Short Corn and a Big Pig Crop compels me to sell the choice of 80 head August and September pigs, all eligible to registery in O. P. C R. Association. I guarantee stock as represented, or money refunded. Pairs and trios no kin.

B. B. BUCHANAN, BROWNSBURG, VA.

A NEW YEARS' THOUGHT.

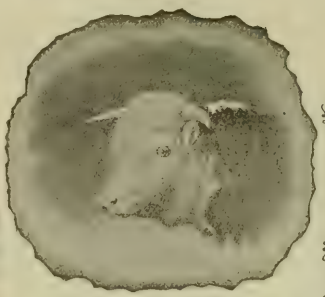
Southern Planter:

New Year's day comes but once in a year, and is one of the most important days for the attentive, close observing business man; and who is there that is not engaged in business in one way or the other? It is on this New Years' day that we stand, as it were, upon the pinnacle of that temple which we have been building in the past. We look back and there see what progress we have made and what mistakes we committed. It is a day for sober, serious thoughts—the day for earnest resolutions. The future is veiled in darkness before us. The past must be our instructor, our guide. Whatsoever tended to our success in our undertakings must be remembered, likewise what resulted to our detriment and loss must not be forgotten, that in future we may not be guilty of the same or similar mistakes. It is on this day that we should make a solemn resolution to do better in the future than we have done in the past; we must progress, go forward, improve ourselves and our surroundings, and not merely stay to live or crawfish like slide backward. Such thoughts, such resolutions, are as necessary for the farmer as they are for the merchant or banker.

Now, brother farmers, let us put our heads together, review and consider what in our business we have done or accomplished during the past year and years. Have we done our duty, as farmers, to the soil we cultivated; did we improve it, or merely took off what crops it produced, paving no further attention to our Mother Earth? If we did improve it, let us improve still more in the future; if we were merely after the crop we took off, let us stop short right here and say, It shall not be thus in future, but we will feed our soil, give better tillage, gather better harvests. But how is this all to be done here in this part of the South; what can we expect—the soil is so poor? Exactly so; but, pray, what made the soil so poor? Shall I tell you? You need not get offended, either; truth never offends. It is brought about by a soil-starving system of farming.

Take a cow that is of ever so good a breed and good in flesh; she brings her calf and has plenty of milk for it and some to spare for you, because you fed her and kept her in good condition. Now, change your plan, feed that cow no longer, but go to her with your milk pail as regular as you ever did. Now note the result: She will give less and less milk every day, she gets poorer and poorer in flesh every day, and finally the poor creature, no matter how good she once used to be, lies down to get up no more. You have starved her to death. Now, that good cow represents the soil we cultivate. We have taken off crops without feeding it. Now it is poor in flesh, almost every particle of available plant food has been extracted from it, and in many instances it is a great wonder that it produces a crop at all, and yet it does. Evidently nature filled this Southern soil with such an abundance of materials as plant food as is rarely found in any other section of this or any other country. But how can we restore fertility to our

HEREFORDS



IMP. SALISBURY.

For Sale..

A few VERY CHOICE BULLS; also Cows in Calf.

MURRAY BOOCOCK,

"CASTALIA," KESWICK, VA.



JERSEYS FOR SALE

Some choice young COWS and HEIFERS, sired by the great St Lambert bull,

ETHEL'S JOHN BULL No. 29005 whose dam, Ethel of Shelburne, granddam Crocus of St. Lambert, and her full sister, the great Mary Anne of St. Lambert, have an average butter record of 22 lbs. and 7 ounces in 7 days.

Also some extra fine BULL CALVES out of high testing daughters of the above bull, and sired by our grand young bull,

ADMIRAL ST. LAMBERT No. 51038 whose dam, Flower of Meridale, has a butter record of 26 lbs., 11½ oz., in 7 days, and a daily milk record of 53 lbs., 8 oz.

We have also for sale some fine cockerels and pullets of Indian Game, Barred P. Rock and White Wyandotte fowl.

BOWMONT FARMS, SALEM, VA.

.. BACON HALL FARM ..

HEREFORD CATTLE—Winners at ten fairs 1899.

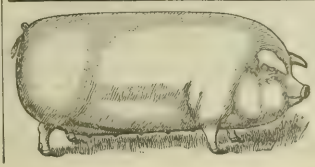
DORSET SHEEP—Bred ewes and fall lambs.

BERKSHIRES—Only pigs at present.

MUSCOVY DUCKS.

SATISFACTION ALWAYS OR NO SALE.

E. M. CILLET, Verona, Baltimore Co., Md.



PLEASANT VIEW HERD OF..

REGISTERED

Chester White AND THE FAMOUS O. I. C. Swine

Can furnish pairs and trios not related. Pedigree furnished with every pig sold. Correspondence solicited.

ARCHIE C. ROPER,

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soil and bring it up again? Take the case of the cow above spoken of. What would you think of the owner of that cow if, when he found her scarcely able to get up again, bringing to her a teaspoonful of condition powder, thinking that that was all that was required? Does it help? Certainly not; but bring her some good forage stuff; see how eagerly she eats it. It seems to strengthen her, for shortly after she rises, getting upon her feet again. The farmer who feeds his soil with a bag of fertilizer (can you guess what that stuff consists of?) to the acre, is like the man who would buy a spoonful of condition powder, thinking that that was sufficient to put his cow upon her feet again. Mineral manures or fertilizers are all right in their places; so are the condition powders; but the cow needs good hay first, and our soils need vegetable matter or humus first and fertilizers later on or in conjunction with the application of vegetable matter. It is sheer waste of money to use fertilizers on any lands that are destitute of humus. Humus makes and keeps the soil mellow; fertilizers given in small doses to such poor soil, ruins the soil, extracts what little fertility is left, causes the soil to become solid to leach. There are some good farmers in Virginia who till their ground properly and report large yields of crops, but these good farmers are living scattered so far apart, that even if their good farming habits were as contagious as small-pox, it would not reach many a one of those who are farming slip-slop. We have good teachers in the *Southern Planter*—Prof. Massey and those farmers whose articles are found in the *Southern Planter*, reporting that they make farming pay.

As average farmers, let us, on this New Years day, resolve to change, do better in future, and place Virginia once more in that proud position she once occupied as an agricultural State. There is much thought and work before us, but it can all be done. May Providence bestow blessings upon all good teachers and push-a-head agriculturists in this State, and thus give to all a happy, prosperous New Year and many more yet to follow.

J. A. F. SCHEFFELER.

Prince George Co., Va., Jan. 1, 1900.

ESSEX PIGS.

Col. W. Miles Cary, proprietor of the old John Randolph of Roanoke plantation, Randolph, Va., is advertising some handsome specimens of this breed in another column. Pigs from two months to four months old are offered at reasonable prices. It is well known that this breed requires less food than any other, and easily takes its place amongst the first as a bacon hog.

SPRAY PUMPS.

The P. C. Lewis Manufacturing Co., Catskill, N. Y., are advertising their up-to date spray pumps in another column. Send for their circulars and prices.

"Rob Peter to pay Paul." That is what they do to take stimulants for weak nerves. Hood's Sarsaparilla gives true nerve strength.

BILTMORE FARMS,
BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO GEO. F. WESTON, SUPT.



FOR SALE
Highlands Stock and Poultry Farm ....

at a very low price and on good terms.

50 head of the best Pure-Bred **SHROPSHIRES** in Virginia.

A few top **CHESTER** and **POLAND-CHINA HOGS** and **PIGS**, very low.

100 head of extra-fine **BARRED PLYMOUTH ROCK FOWLS.**

If you want a splendid home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

"PASTEUR" BLACK LEG VACCINE,

The original and genuine preventive vaccine remedy for blackleg. Officially endorsed in all the cattle raising States. Successfully used upon 1,500,000 head in the U. S. A. during the last 4 years. Write for official endorsements and testimonials from the largest and most prominent stockraisers of the country. "Single" treatment vaccine for ordinary stock; "Double" treatment vaccine for choice herds,

Registered **"BLACKLEGINE"** Trade Mark.

"PASTEUR" single treatment Blackleg Vaccine READY FOR USE (no set of instruments required). No. 1 (10 head), $1.50; No 2 (20 head), $2.50; No. 3 (50 head) $6. Easily applied. No experience necessary.

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Are the most profitable sources of revenue on the farm. Like other things, it requires much time and attention to be a successful poultry raiser, while the necessary requisites are being constantly added in order to accomplish the desired end. Among the greatest hindrances may be mentioned the various diseases peculiar to fowls, such as CHOLERA and GAPES, which can not only be speedily and permanently eradicated, but their appearance again prevented by the occasional use of **POLK MILLER'S**

"VICTORY" POULTRY FOOD

An excellent preparation, indispensable to every poultry raiser. It is not a food as its name implies, but a scientifically PREPARED MEDICINE (put up in handsome tin boxes) a given quantity of which is to be mixed with the usual quantity of food. For sale by all DRUG and COUNTRY STORES. If your merchant hasn't it in stock, get him to get it for you.

PRICE, 25c. per Package; By mail, 35c.



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POLK MILLER DRUG CO.,

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IN THE LAND OF THE PHAROAHS

As Rome was accounted to be the Mother of Nations, so was Egypt the Mother of Agriculture. In the wide outspreading and fertile valley of the Nile, agriculture attained under the regime of the Pharoahs the first great impetus which has kept it ever to the fore as the leading and most congenial occupation of mankind.

No pictured or written story of this land and these people is complete without reference to their agriculture. The most ardently worshipped gods were those who were supposed to exercise a potent spell—a quickening, as it were, over the growing crops. These things being true, it is most fitting that S. L. Allen & Co., of Philadelphia, Pa., should devote the first page of their new 1900 Planet Jr. Catalogue to splendid views of the Nile and far off Egypt. And, by the way, this brings to mind that we have never seen a more artistic or comprehensive catalogue than the one just referred to. Of course, it contains cuts and complete descriptive matter of the entire line of Planet Jr. garden and farm tools, calling special attention to improvements and additions made to the line during the year. But, more than this, and of deepest interest, it gives sixteen full page reproductions from original photographs taken in this country and many foreign lands showing the Planet Jrs. in actual garden and field operation. The book, therefore, gives not only a comprehensive view of the merits of the tools, but introduces the reader to new and novel scenes of people, places and methods.

Can you imagine a camel harnessed to a cultivator or horse hoe? or a yoke of cattle at the same work in the valley of the Nile? or a single ox at work among the vineclad hills of France? or the famous Clydesdales of Scotland in a potato field? Orchard cultivation in fruit-laden New Zealand or a pastoral scene from antipodean Australia? Well, it contains all these and infinitely more. Allen & Co. have put out an edition of 350,000 of this splendid book, and it would seem that they had enough to "go round," but to make sure of getting a copy, you had better write them at once. The book is mailed free to all inquirers. Kindly mention our paper in writing.

The Scottish American tells of a certain young minister who, when visiting strange congregations, did not scruple to fish for compliments. On one occasion he was invited to take dinner with a douce old elder, as reticent as they make them. Manipulate the conversation as he would, our young friend could not get his host to say "sermon" and at last he boldly introduced the important subject by remarking directly: "That was a fine text I had to day." But the elder knew his man. "Ou, ay, there's naething wrang wi' the text!"

Mrs. Hoon (indignantly): "I wonder why Mrs. Gabbleton doesn't mind her own business?"

Mr. Hoon: "One reason is that she has no mind, and another is that she has no business."



THE POPULAR MARKET-GARDENER'S TOOLS.

MATTHEWS



New Universal Model Garden Drill. Single Wheel plants straight rows at uniform and perfectly regulated depth. Fine regulation of exact quantity of seed dropped.

NEW UNIVERSAL



Double Wheel Hoe, Cultivator, Plow and Rake, for close and "new-way" cultivation. Runs easily. Adjustable to any width. High Arch Expansion Hoe valuable and supplied. Single Wheel Hoe, Cultivator, Plow and Rake, for close and "new-way" cultivation. Runs easily. Adjustable to any depth. All kinds of attachments.

New Universal **Combination Drill**



The only implement made which can be used as seeder and cultivator 1 or 2 wheels as desired. Quickly changed.

All kinds of labor saving attachments.

All our implements are guaranteed made of best material, finely finished and have tough oak hard handles and are recognized standards of America. Send for book describing this means of success in hand seed planting and cultivation FREE.

POPULAR PRICES TO EARLY PURCHASERS.

AMES PLOW COMPANY, BOSTON AND NEW YORK.

HAWKEYE GRUB AND STUMP MACHINE

Works on either Standing Timber or Stumps. Pulls an Ordinary Grub in 1½ Minutes.

Makes a Clean Sweep of Two Acres at a Setting. A small boy can handle it. Simple in construction, strong and durable. You cannot afford to pay taxes on unproductive timber land. Illustrated catalogue Free.



and testimonials. Also full information regarding our I. X. L. GRUBBER, IRON GIANT GRUB & STUMP MACHINE, 2-HORSE HAWKEYE and other appliances for clearing timber land.

MILNE MFG. CO. 83 8th St., Monmouth, Ill. Manufacturers of Miniature Horses for SHETLAND PONY Catalogue.

FERTILIZERS—FROM FACTORY TO FARM

WE SELL YOU DIRECT. NO AGENT'S PROFITS. NO SALESMAN'S EXPENSES.

VALUABLE PREMIUMS GIVEN FREE.

For premium list, prices, samples and book, write

THE SCIENTIFIC FERTILIZER COMPANY, HERR'S ISLAND, PITTSBURG, PA.

"MR. DOOLEY" ON WOMAN SUFFRAGE.

HE SAYS WOMEN KNOW WHO'S PRESIDENT "ON'Y WHIN TH'PRESIDENT GITS MARRIED."

"An' annyhow, women'll niver vote," said Mr. Dooley, interrupting Mr. Donahue's discourse on Woman Suffrage. "In th' first place, th' men won't lave thim do it. They have th' monopoly now, an' they're far from foolish enough to let go iv anny iv it. Thin no woman cares f'r politics. Down in her heart she hates an' despises it, an' wondhers what it's all about. An' I don't blame her. Not till they start a political column in Butchrick's Pattherns will ye iver be able f'r to musther a corp'ral's guard iv women at th' polls. I b'lieve if ye was to take th' sthrongest woman sufferejest in th' counthry an' sarch her ye'd find she didn't care whether Willum J. O'Brien was Aldherman or Congressman. Th' on'y time th' likes iv thim knows who's President is whin the President gets married. He has their devotion in his wife's name."

"Well, I dinnaw about that!" said Mr. Donahue. "'Tis lookin' dangerous whin Mrs. Donahue begins to think iv votin'. In times past she never knew 'twas iliction day till she saw th' pathrol wagon go by."—February *Ladies' Home Journal.*

NO JURISDICTION.

A couple applied to a rural justice of the peace for total divorce. The justice called the bailiff aside and asked in a whisper:

"What's the law on that p'int?"

"You can't do it," replied the bailiff; "it don't come under yer jurisdiction."

"We're willin' to pay cash fer it," replied the husband, not understanding the nature of the consultation. "I've got the money in this here stockin'."

The justice looked grave. Then adjusting his spectacles and addressing the man, said:

"You knowed 'fore you came here that 'twarn't fer me ter separate husband an' wife, an' yet you not only take up the time o' this here valuable court with yer talkin', but ackchully perpose ter bribe me with money! Now, how much has you got in that stockin'?"

"'Bout six dollars an' a half, yer honor."

"All right, then. I fine you $5 for bribery, an' a dollar an' a half fer takin' up my time with a case what my jurisdiction is out of, an' may the Lord have mercy on yer soul!"—*Atlanta Constitution.*

Mention THE SOUTHERN PLANTER when writing advertisers.

Be Fair with Your Fields and they will be fair with you..... Listen a moment.



Every time you take a crop off a field you relieve it of just so much fertility. You should do something to restore that fertility. Barn yard manure is the best fertility restorative known if properly handled and properly applied. Even a small amount can be made to go a long way and accomplish great good if finely and evenly spread. This cannot be successfully done by hand—it is work for a perfected machine. The only machine known which accomplishes this is

The KEMP MANURE SPREADER.

It will Double and Treble the Value of the Manure Heap.

It spreads all kinds of fine and coarse manure evenly; it makes no "skips;" does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and makes it fine. Better than anybody can do it by hand. Spreads lime, wood ashes, salt, etc., equally well. With the distributing attachment it puts the manure direct into the open drill. Made in three convenient sizes. Ask the opinion of anybody that uses one. Write for illustrated catalogue.

Kemp & Burpee Mfg. Co., Box 23, Syracuse, N. Y.

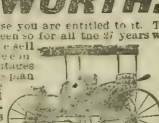
YOUR MONEY'S WORTH.



No. 202—Four Horses, Set, sells for $85 to $10 more than twice price. Price, $42.50

You have a right to expect that, because you are entitled to it. To meet this condition is our aim and has been so for all the 27 years we have been in this business. To do this we sell all goods direct from our factory to the consumer at wholesale prices. The advantages of this plan are many and obvious. This plan has built us up until we are now the **largest manufacturers in the world selling vehicles and harness to consumer exclusively.** We make 178 styles of vehicles and 65 styles of harness. The buyer takes no risk on our plan as we ship our goods anywhere for examination and guarantee safe arrival.

Send at once for a copy of our **large illustrated catalogue—FREE.**

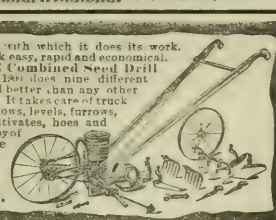


No. 376—Canopy Top, Two-spring Carriage with side curtains, storm apron, sun shade, lamps, fenders, pole or shafts, $65. Same as sells for $85 to $90 more

Elkhart Carriage & Harness Mfg. Co., Elkhart, Indiana.

IRON AGE EASE

The test of a tool is the ease with which it does its work. Good tools make good work easy, rapid and economical. The **No. 4 IRON AGE Combined Seed Drill and Wheel Hoe** for $30 does nine different things and does them all better than any other six tools you could buy. It takes care of truck from first to last. It plows, levels, furrows, sows, covers, rakes, cultivates, hoes and hills. Send for a free copy of the famous **Iron Age Book for 1900.** It's a money-making guide.



BATEMAN MFG. CO.
Box 127, Crenloch, N. J.

WE SAVE YOU MONEY ON FERTILIZERS.

Buy your fertilizers Direct at Wholesale Prices, and get your money's worth.

SPECIAL OFFER TO CLUB PROMOTERS.

WRITE FOR PRICES, SAMPLES AND PAMPHLET.

WALKER, STRATMAN & COMPANY, Pittsburgh, Pa.



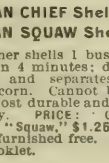
EXCEL GRINDING MILL

Grind your own corn, corn-ears, oats, millet, anything you like. This mill does as good work as can be done. We prove it by best of testimonials. At least let us tell you about it.

PRICE, FROM $17 UP.

INDIAN CHIEF Sheller.
INDIAN SQUAW Sheller.

Either shells 1 bushel of corn in 4 minutes; does it clean, and separates cob from corn. Cannot break. The most durable and satisfactory. PRICE: "Chief" $1.75; "Squaw," $1.25. Repairs furnished free. Write for booklet.



EXCEL HAND MILL.



A perfect mill for dry bones, crockery, grain, etc., for poultry; or for corn-meal, coffee, spices, etc., for household. Made of choicest material and guaranteed the best made. Grinds coarse or fine. Thousands now in use. Write to

EXCEL MFG. CO., Pottersville, N. J.



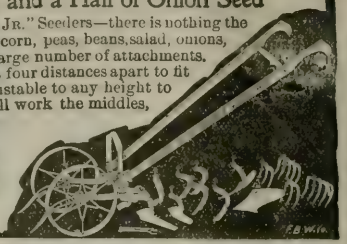
"PLANET JRS."

Putting in a Ton and a Half of Onion Seed

After sowing—which is best done by the "PLANET JR." Seeders—there is nothing the equal of the PLANET JR. No. 11 Double Wheel Hoe for cultivation. Works corn, peas, beans, salad, onions, sugar beets, chickory or any other garden or market garden crop. Look at the large number of attachments. All these can be changed and adjusted to suit the crop. The wheels can be set at four distances apart to fit different widths of row. Can also be set at three different heights. Handles adjustable to any height to fit the man. The seven sets of tools which go with each No. 11 Wheel Hoe will work the middles, level or throw earth to or from the row, cultivate deep or shallow, plow, hoe and rake. All blades are of tempered polished steel.

Each of the 350,000 catalogues we have issued for 1900 gives full description of the 25 styles of Seed Drills and Wheel Hoes we make. Among the 16 full page half tone cuts are a number showing their use in the field in various countries. Describes also our full line of tools embracing Horse Hoes, Cultivators, Harrows, Two-Horse Cultivators, Seeders, Four Row and Single Row Sugar Beet Cultivators, &c. We mail a copy of this catalogue free.

S. L. ALLEN & CO., Box 1107-X PHILADELPHIA, PA.



STUMBLED, BUT WON A WIFE.

A GOVERNOR'S QUICK WIT TURNS AN AWKWARD MISHAP INTO A TRIUMPH.

Governor Aaron V. Brown, of Tennessee, was a Chesterfield for politeness and a Talleyrand for wit. When he, a much-admired widower, was paying his addresses—as yet unavowed—to an attractive young widow, he called at her house one day and was ushered into a room darkened to the degree which the prevailing fashion of those days declared to be elegant, and before the Governor had familiarized himself with the surrounding objects in the gloom the young widow entered the room. With enthusiastic devotion he advanced to meet her hastily, not noticing a low stool directly in his pathway; unhappily, he stumbled over it and plumped upon his knees directly at the feet of the object of his affections. Before she could utter a word of apology or sympathy the adroit Governor, seizing her hand, exclaimed: "Madam, a happy accident has brought me where inclination has long led me." The formal declaration which followed was of course successful, for such ready gallantry could not be resisted.—February *Ladies' Home Journal.*

The Dean of Rochester's capacity for good stories is as proverbial as his knowledge of roses, but we doubt if Dr. Hole has yet given us anything qute so good as the following: A very nice and gentle curate, it appears, went to a Yorkshire parish, where the parishioners bred horses and sometimes raced them. He was asked to invite the prayers of the congregation for Lucy Grey. He did so. They prayed three Sundays for Lucy Grey. On the fourth the clerk told the curate he need not do it any more. "Why?" said the curate, "is she dead?" "No," answered the clerk, "she's won the steeplechase." The curate became quite a power in the parish.

These are slips of the tongue: A lady to her maid: "Wash up your crumbs before you sweep your dishes." In the opening of a religious service: "Make a noyful joise." Announcement by a minister: "I hold in my letter a hand which I will now read." Notice of a lecturer: "Professor ——— will give a lecture on 'Dickery and Thackens.'"

The Implement Co.

1302-1304 E. Main St., RICHMOND, VA.

We are general agents for the

IMPERIAL CHILLED PLOWS

and REPAIRS, and can recommend them as the best plows to do the work with the least draft.

The BISSELL CHILLED PLOWS we have sold for years, and they have given universal satisfaction. The Bissell Plow Company is the only Company who have not advanced prices on Plows and Repairs. We likewise have the OLIVER CHILLED PLOWS and REPAIRS as well as the DIXIE and FARMERS' FRIEND CAST PLOWS and REPAIRS at low prices.

THE..

CAPITAL WAGON

is an excellent wagon, which has many more improvements than any other wagon made. No better wagon is made than the BUCKEYE WAGON for one or two horses We warrant both the Capital and Buckeye.



ENGINES, SAW-MILLS, Etc, HALLOCK'S SUCCESS Anti-Clog WEEDER, Prices on application. Send for our new BUGGY, CARRIAGE and HARNESS CATALOGUE. Catalogues of all kinds of AGRICULTURAL IMPLEMENTS sent on application.

THE IMPLEMENT CO.,

1302-1304 E. Main Street, RICHMOND, VA.

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



crushes, cuts, lifts, pulverizes, turns, aerates and levels all soils, for all purposes under all conditions. Made entirely of *cast steel* and *wrought iron*, they are *indestructible.* They are the cheapest and best riding harrows and pulverizers on earth. Various sizes, for various uses, 3 to 13½ feet. We mail catalogue and booklet, "An Ideal Harrow," free.

SENT ON TRIAL TO BE RETURNED AT MY EXPENSE IF NOT ENTIRELY SATISFACTORY. I deliver free on board at New York, Chicago, Columbus, Louisville, Minneapolis, Kansas City, San Francisco, &c.

Address DUANE H. NASH, Sole Mfr., Millington, N. J. or Chicago, Ill.

MENTION THIS PAPER.

HOLSTEIN BULL FOR SALE.

Mr. T. O. Sandy, Burkeville, Va., offers his registered Holstein bull, "Sir Netherland of Maples," for sale, in another column. This is a magnificent animal, and only four years old. Mr. Sandy can use him no longer in his herd without inbreeding.

"A woman doesn't know anything about politics, an' if she has sinse she won't thry to larn. Politics comes nath'ral to a man. I knew how to vote befure I'd been here a month, an 'Timothy cud mark a ballot befure he cud r-read. But ye'd [Molly Donahue] not know whether to put a cross on yer ballot or to cut it on the bias."—The author of "Mr. Dooley" in the February *Ladies' Home Journal.*

A witty Frenchman has declared that the Parisians are passionately fond of the country, but they never dare drive farther than their beloved park for fear a revolution will take place during their absence and they will miss having a finger in the pie. So, like the famous King of France, who marched up a hill and then marched down again, Monsieur and Madame take a turn in the Bois and then drive home again. Fashionable Parisian life is an endless treadmill.—February *Ladies' Home Journal.*

Young men, before entering one of the principal medical schools of this country, are examined as to their general knowledge. One of the questions given to the candidates for one of these schools last year was: "What are the names of the books of the Bible?" Of one hundred and twenty answers, only five were correct. Among the names of books given were: "Philistines," "Marcus Aurelius" and "Epistle to the Filipinos."—Februaay *Ladies' Home Journal.*

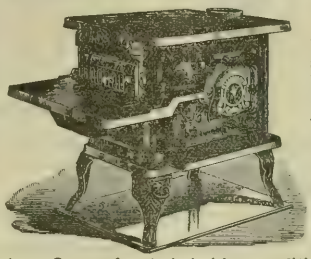
If you are undecided as to whether you will be a philanthropist or an orator, remember that the voice does not carry so far as the hands, nor nearly so much. —*E. W.*

I love a rooster for tew things—one iz the krow that is in him, and the other iz the spurs that air on him to back up his krow with.—*Josh Billings.*

ESSEX HOGS.

Mr. C. F. Moore, Bennettsville, S. C, advertises this breed in another column. His herd is of the bluest blood, and prize-winners.

The People Now Realize It.



A little over a year ago we advertised that we would sell one stove of our make to anybody, as low as a dealer could buy a carload. Then, our trade was limited to Virginia and North Carolina; since we advertised this, we have shipped them to every State from New York to Florida, and as far west as Ohio—right in the heart of other stove manufacturers.

Nothing but praise comes from these States for their baking qualities and excellent finish. The celebrated **FITZ LEE COOK STOVES** are destined to be in more homes and more States than any other stove ever made. WRITE FOR INFORMATION.

SOUTHERN STOVE WORKS, 815 to 827 N. 17th St., Richmond, Va.

The Pipe Smoker's Dream.

A Tobacco which ABSOLUTELY does not BITE nor BURN the tongue, and which leaves a moist, pleasant taste in the mouth.

Mahogany Blend

Made after a newly discovered formula. Sample package by mail, 10 cents. Address

P. T. CONRAD, Richmond, Va.

APPLES.

Apples were at one time underestimated; they were scarcely considered a fruit rare enough for the consideration of the epicure, unless, indeed, they formed a part of some elaborate dessert, compounded and cooked by a skilled housekeeper. Apple jellies, puddings, pies and cakes might do, but plain raw apples were fit only for school children, vegetarians, or the poor. All this is now changed, and the apple has come to its own again.

But if its flavor has been at various times slightly esteemed or discredited, at least its wholesomeness has been steadily recognized. "Apple sayings" are frequent, both in our country and in England, all of which testify in favor of the fruit. In the "west countree," there are four such:

"An apple a day
Sends the doctor away,"

is the first and briefest. Then follow, in the order of their vigor, three more:

"Apple in the morning,
Doctor's warning."

"Roast apple at night,
Starved the doctor outright."

"Eat an apple going to bed.
Knock the doctor on the head."

A little less aggressive is one of the Midlands:

"Three each day, seven days a week—
Ruddy apple, ruddy cheek."

But more interesting than these is an old orchard verse which used to be recited on certain ancient farms on the plucking of the first ripe apples of the crop. Misfortune was supposed to follow its omission, and its utterance was quite a little ceremony, the first apple over which it was spoken being presented to a young girl, who halved and bit it before any further fruit was gathered, or at least tasted. Thus it ran:

"The fruit of Eve receive and cleave,
And taste the flesh therein:
A wholesome food, for man 'tis good
That once for man was sin.
And since 'tis sweet, why pluck and eat,
The Lord will have it so;
For that which Eve did grieve, believe
Hath wrought its all of woe—
Eat the apple."

—*The Youth's Companion.*

SWEET PEAS.

Those who want to grow these lovely, fashionable flowers should get the seeds planted as *early in February* as the ground can be prepared. Make a deep furrow and sow the seeds, covering them at least *four inches* deep. Cold does not hurt them in the spring, and the earlier they are sown the earlier they bloom.

JAMES T. HUMBERT.

JERSEYS FOR SALE.

Major A. R. Venable, Farmville, Va., offers twenty young Jersey heifers for sale. These were raised by him for his own dairy herd, but the drought shortened his forage crop, and he is unable to carry them. He will dispose of them at very low prices.



STRAWBERRY PLANTS: Excelsior, Johnson's Early, the two best early berries. 50 other choice kinds. Large stock; guaranteed true to name; fresh dug; free from all disease. Raspberries, Blackberries, Asparagus roots, SECOND-CROP Seed Potato: Headquarters. Come earlier and grow larger crops than any other seed. Send for free catalogue to-day. J. W. HALL, Marion Station, Md.





Elmwood Nurseries.

We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.,

APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,

QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.



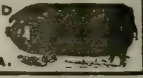
POLAND CHINA PIGS.

BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.

WRITE FOR DESCRIPTIVE CATALOGUE.



J. B. WATKINS & BRO.,
HALLSBORO', CHESTERFIELD CO., VA.





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APPLE, PEACH, PEAR, PLUM, &c.

Grape Vines, Ornamental Trees, Shrubs, Roses, &c.

ALL THE DESIRABLE STANDARD AND NEW VARIETIES.

Headquarters for Tennessee Prolific Strawberry.

The Most Reliable Variety Ever Grown in the South.

Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogues free.

AGENTS WANTED. WRITE FOR TERMS.

W. T. HOOD & CO.

OLD DOMINION NURSERY. RICHMOND, VA.

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

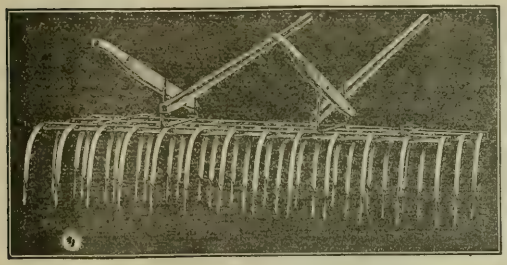
CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

..AGENTS WANTED..

FRANKLIN DAVIS NURSERY CO., Baltimore, Md.

Hallock's SUCCESS Anti-Clog Weeder and Cultivator..

FARMERS,—Those who have used the modern cultivator declare they would not think of farming without one.



EDGEFIELD, S. C., May 5, 1899.

GENTLEMEN,—If you remember I got one Anti-Clog Weeder from you last year. If you have not given the agency to any one else, I would like to have it. I have tried my Weeder on oats, wheat, corn and cotton, and I can truthfully say that I have never yet seen anything carried in a field that I would exchange for it.

I bought me a two-horse cultivator from the New American Harrow Co. last year, gave $45 for it. I have laid it aside; the Anti-Clog Weeder takes its place and takes the place of them all. Every body that passes and sees the Weeder work is puzzled to know why it does its work so complete and does not damage the corn and cotton. My neighbor wants one. Please send one to Edgefield, S. C., quick.

Yours truly. J. T. McMANUS.

READ WHAT THEY SAY AND WRITE THEM.

RICHLANDS, N. C., Nov. 16. 1899.

I have simply this to say of your Weeder speaking from my own experience: I cultivated forty-seven acres of peanuts with the Weeder, no hoeing or plowing; and the news has gone out that it is a success, and I know I am bound to sell many of them.

I will write you again. H. W. HUMPHREY.

CARRSVILLE, VA., July 4., 1899.

I have sold seventy (70) Weeders this season, and at least fifteen or twenty men have told me to count upon them for next year. I did not reach the one hundred mark, as I hoped to, but am in the field for it next season. Sixty-eight of the seventy men are enthusiastic in praise of the Weeder. The other two did not start their Weeders quite in time. I have had at least five men tell me if they could not get another they would not take $100 for theirs. I shall want more territory next year. Respectfully yours.

C. A. CUTCHINS.

WISEVILLE, VA., August 30, 1899.

We like the Weeder we bought of you last spring very much, though this has been a bad season on account of so many packing rains.

Did not have to use the hoe in our potato crop once. Hope I may be able to sell some Weeders next season for you. Send me a few circulars. How about your Potato Digger?

Yours very respectfully, G. W. MOORE.

CAN YOU AFFORD TO BE WITHOUT ONE?

WE DO NOT give away the first one to introduce the valuable Cultivator, but we do sell at a VERY LOW price. Write for the SPECIAL PRICE NOW.

D. Y. HALLOCK & SONS, Box 828, YORK, PA.

SHOCKOE WAREHOUSE

..FOR THE SALE OF LEAF TOBACCO..

RICHMOND WAREHOUSE CO., Props. *WILL L. HAZELL, Manager.*

R. H. SARVAY,
A. OSTERLOH, Jr., } **Salesmen.**

Shockoe Slip, RICHMOND, VA.

For GOOD LIGHT, HIGH PRICES and FIRST-CLASS ACCOMMODATIONS, the OLD SHOCKOE cannot be excelled.

Remember. We pay you just as soon as your last pile of Tobacco is sold, thereby enabling you to get away early. So come to see us, first or last sale; we won't keep you late, and will guarantee you the TOP MARKET prices for your Tobacco.

Clubbing List for 1900.

The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever journal you wish.

	PRICE ALONE	WITH PLANTER
DAILIES.		
The Dispatch, Richmond, Va.	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harpers' Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeders' Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harpers' "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 25
Cosmopolitan "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan, "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish *no sample copies* of other periodicals.

Seed House of the South.

RED CLOVER,
MAMMOTH CLOVER,
CRIMSON CLOVER,
WHITE CLOVER,
LUCERNE CLOVER,
ALSYKE CLOVER,
BOKHARA CLOVER,
JAPAN CLOVER,
BUR CLOVER,



TIMOTHY
ORCHARD GRASS,
RED TOP or HERDS GRASS
KENTUCKY BLUE GRASS
RANDALL GRASS,
TALL MEADOW OAT GRASS
JOHNSON GRASS,
GERMAN MILLET,
BUCKWHEAT,
OATS and
CANE SEED.

"Whatsoever One Soweth, That Shall He Reap."

We sell strictly reliable FIELD AND GARDEN SEEDS of every variety at Lowest Market Rates, included in which are RAGLAND'S PEDIGREE TOBACCO SEEDS.

WE ALSO SELL

Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

Wm. A. Miller & Son, 1016 Main Street LYNCHBURG, VA.



Farmers

I manufacture the following brands of **FERTILIZERS:**

Pure Ground Animal Bone, Flesh, Blood and Bone.

Good for all Crops and Permanent Improvers of the Soil.

JAS. B. BICKERSTAFF, Richmond, Va.

When corresponding with advertisers, always mention The Southern Planter.

THINGS WISE AND OTHERWISE.

Dreams go by contraries. The young woman who seems to be a dream of loveliness oftentimes proves no exception to the rule.

The race is not always to the swift, although the man who leads a fast life is likely to reach the end of his course far ahead of his staid and methodical competitor.

You can't make a silk purse out of a sow's ear; but then silk purses are no longer the vogue, and persons possessed of a pair of porcine auricular appendages have no difficulty in finding other and more serviceable uses for them.

There is many a true word spoken in jest. This is the only way the truth ever proceeds from some persons' mouths. So they must not be blamed for doing what is contrary to their nature and instincts. —Boston Transcript.

The longest way around is the safest way home. For this reason, doubtless, there are many persons who never indulge in a direct path to the truth. By choosing a roundabout course they probably expect to arrive it at eventually in perfect safety.

Brag is a good dog, but Holdfast a better. This depends upon the point of view. Most persons would rather have a dog brag—that is to say, bark—than to hold fast to what he has seized upon, if they happen to be the instrument upon which he sharpens his teeth.

NOT TO BE CAUGHT NAPPING.

"I'm sorry about this war in South Africa."

"It doesn't affect you personally."

"Yes, it does. Half a dozen girls have told me it was going to make diamonds more expensive. Maybe it was my egotistic imagination, but every one of them seemed to have a 'now-is-the-time-to buy-engagement rings' look in her eye."—Stray Stories.

THE RETORT GALLANT.

"Why did you place such a tough fowl before me?" asked the indignant lady patron of a waiter in a down-town restaurant.

"Age before beauty always, you know, madam, was the gallant reply.

And then she paid her bill without a murmur.

HER GRIEVANCE.

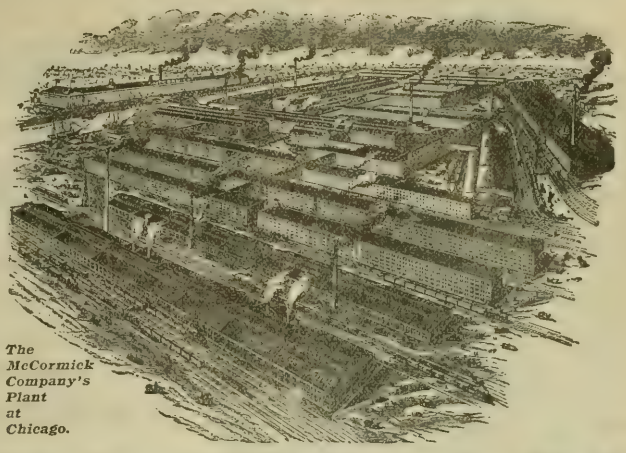
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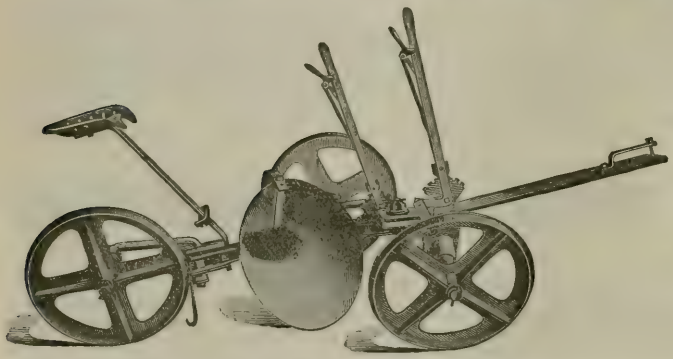
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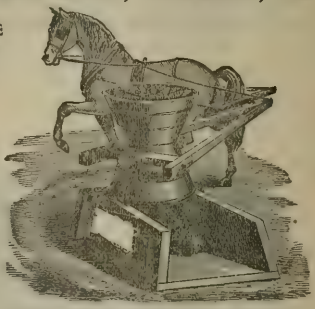
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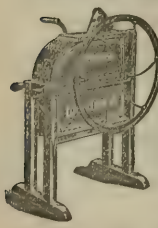
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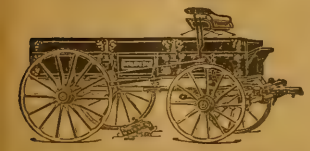
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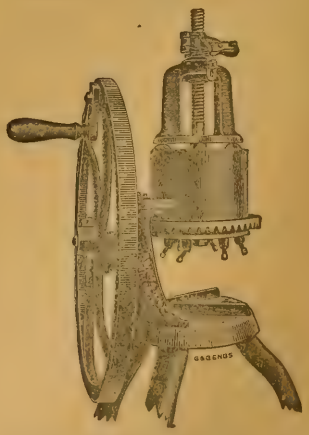
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MY DEAR SIR,—I am pleased to acknowledge receipt, through you, of the statement from your company relative to my twenty-year endowment policy, No. 102,602, for $2,500, which matures on the 24th day of April, 1901. I note that the dividend additions to this policy amount to $1,001.00, making a total cash value of $3,501.00 at maturity, besides a final dividend payable at the same time.

The result, while not surprising, is especially gratifying to me, as one of the trustees of the Northwestern, and fully confirms my confidence in the ability and faithfulness of its official management, and their loyalty to the best interests of its policy holders. As a member of its Board for the last eight or ten years I have been present at a large number of its meetings, and I have no hesitancy in saying that I believe the Northwestern Mutual Life Insurance Co., of Milwaukee, Wis., is in point of financial strength and the excellency and economy of its management, without a peer in the insurance circles of this country.

I most heartily congratulate you on the opportunities you have, as its agent, for serving so well your friends in this State and city, who desire to purchase the cheapest and best insurance.

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J. F. JACKSON, Editor and General Manager.

Vol. 61. MARCH, 1900. No. 3.

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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, March, 1900. No. 3.

Farm Management.

WORK FOR THE MONTH.

When we wrote the article on "Work for the Month" for our February issue, the weather was mild and spring-like and had been so during nearly the whole of January, and there was every indication of an early season. February, however, has not belied its reputation. In the Old Country it is a common saying that "February fills the dyke either with black or white;" that is to say, it will either be wet or there will be snow. Whilst in these respects February this year has not come near the record-mark which it made a year ago, it has yet been a much more severe month than January. The fall of snow has been considerable over a large part of the South, whilst in the North and West it has been very heavy. The frosts have been severe and have extended with damaging severity into Florida, where the early truck crops and strawberries have been badly cut down. Here and in the adjoining States whilst the frost has been severe—the thermometer in several places in this State having been down nearly to zero on two or three days—we do not hear of any damage done even to fruit buds; indeed, several good authorities assure us that the only effect will be to ensure a good crop of fruit by checking the abnormal activity of the sap brought about by the mild weather of January. We trust this may be so. The effect of the cold on such crops as are in the ground will, we believe, be only beneficial in checking the too succulent and forward growth and making more certain a robust and hardy plant. We have noticed for years that an abnormally early and genial spring is rarely followed by a good crop year. Upon arable land not in crop, the effect of the cold weather can only be good, and especially so where our advice as to fall and winter plowing has been followed. A hard freeze on such land is worth many harrowings in fitting the soil to become a good seed-bed. It is also beneficial in that it destroys much insect life just awakening into pernicious activity. The heavy snowfall and rain will have helped much towards making good the deficiency in moisture in the land adverted to in our February issue; but there is still every reason to do all possible to conserve the moisture in the land and to make it capable of holding still more. Should the spring be a dry one, we shall go into summer with a deficiency in rainfall and in stored moisture in the land, which will render deficient crops a very probable contingency. There is, therefore, still every reason for us to urge the importance of deep breaking of the land by means of the subsoil plow. At this season of the year it is not advisable to plow deeply into the subsoil and turn it on to the top, as the soil so turned up cannot be sufficiently ærated and acted upon by the elements to make available the inert plant food in it so as to render it available for the crops of the present year. A little of this subsoil may be brought up to the surface with advantage if it is afterwards well mixed with the surface soil, but the bulk should be left in the bottom of the furrow and there be broken to pieces with the subsoil plow; or if

such a plow is not available, then with a coulter, single-tooth or bull-nose cultivator. The doing of this work should be pressed forward whenever the land is fit to plow, but it is equally as important for the success of the crop not to plow when the land is wet. Land plowed wet can never be made into a good seed bed. March winds are proverbially drying ones, and the sun here in the South has much power in this month. The combined effects of these two factors make the urgency of losing no opportunity of pushing on the breaking of the land great if good seed-beds are to be secured.

Whilst we are thus urgent on the necessity for attention at once to the plowing of the land intended to be cropped, we desire to be equally emphatic on the importance of not plowing one acre more land than can be properly cultivated and fertilized after it is plowed. Too many Southern farmers will persist in plowing and seeding land long after they have plowed every acre that they can fertilize effectually or cultivate properly. The result is crops which do not begin to pay the cost of their production and a further depletion of the crop-producing capacity of the land. "A little farm well tilled" has been from time almost immemorial the standard of agricultural prosperity. It is so to-day, unless the owner of the farm has large capital and business-like capacity enabling him to operate on a large scale. If the great majority of Southern farmers would cultivate half the land they now cultivate, and do this in the same thorough manner that the Dutchman, the Frenchman, the Scotchman and the Englishman do in their own countries, the degree of success and prosperity would be sensibly raised in the South. The average yield of all our staple crops is far below what it ought to be and what it can easily be made to be. Without holding up for imitation such abnormal yields of corn as those produced by our friend, Mr. H. E. Wood, of Fluvanna county, Va., who last year made 183 bushels of corn on an acre of land, we can point to Mr. Wood's success on 22 acres of land as reported in our last issue as being clearly and easily within the competency of a very large proportion of our farmers. On those 22 acres Mr. Wood made 1,175 bushels of corn, or an average of nearly 55 bushels to the acre. We know many other farmers who are doing equally as well. We know, also, of scores of others who are not making 20 bushels to the acre who have land equally as good as much of that cultivated by Mr. Wood. Why should there be this disparity? It is largely the fault of the man and not of the land. He will attempt to cover too large an area and thus fails to do justice to any of it. Southern agriculture can never be as profitable as it ought to be, and can be, until first this fault is remedied, and next that live stock in larger quantity is kept to return to the land that portion of the fertility taken from it which is not called for in the making of beef, mutton, bacon, butter and other products, and which, in the absence of live stock, is sold off the farm never to return in equally as available a form.

The wintry weather which we have had in February has no doubt largely prevented the seeding of Canada peas and oats for a forage crop, and of oats, as advised in our last month's issue. No delay should now be allowed in seeding these crops. If they are to be at all successful, they must be seeded early this month. One gentleman, writing us on the Canada pea and oat crop, says that he seeded his crop on the 9th of March in 1898, and made a fine crop, which was ready for feeding on the 1st of June; but he adds, "I would advise sowing this crop earlier than I sowed; in fact, it should be seeded just as soon as the ground is in condition to work—in February, if possible." In preparing the land for the oat crop, see to it that much better preparation is given than is customary. Merely just turning over the top two or three inches of soil and sowing one bushel, or even two bushels of seed to the acre, is not sufficient to ensure a profitable crop. The oat crop can be grown successfully and profitably in the South, especially when the grey winter oat is seeded as it ought to be in September or October, and even when seeded in February or March, if the grey winter oat or the rust proof is sown, good preparation of the land made, and the crop is seeded on land in a good state of fertility, or some acid phosphate and potash fertilizer is used on thin land. If, however, these conditions are not complied with, or spring oats are seeded, the crop is not likely to be a profitable one, and it would be better farming to wait a month or two and sow cow-peas for a forage crop instead of the oats.

In our last issue, we gave advice as to the sowing of grass for meadows or pasture. We refer our readers to that issue. As soon as the land is fit to work, clover and grass seeds should be sown. Wherever the seeds are to be sown on a grain crop, it will be found an excellent practice to harrow the crop before seeding the small seeds. This will not only make a better seed-bed for the clover and grass seeds, but will greatly help the grain crop. After sowing the small seeds, roll the land if dry enough to roll, and thus compact the soil around the seeds and ensure better germination. Do not spare the seed. It is "penny-wise and pound-foolish" to do so. The light seeding of grass seeds which are so common in the South, have much to do with the poor stands obtained. Even the best grass seeds are very uncertain in germination.

In some varieties, the percentage of viable seed is rarely more than 50 or 60 per cent. This is through no fault of the seedsmen, but is caused by climatic conditions at the time of blooming and ripening. Much clover is lost from not covering the seed sufficiently at the time of sowing. Left on the top, the seed germinates, and then having but a slight hold on the land a few days of hot sun kills the young plant. Our own practice always was to harrow the seed in lightly, and we scarcely ever failed to secure a good stand.

One of the most important matters now calling for the attention of farmers is the kind and quantity of fertilizer to be bought and applied for the production of the season's crops. As our old readers well know, we have always been the staunchest advocates for the use of farm-yard manure as being in every way the most reliable fertilizer for all crops except, perhaps, the Irish potato crop, and we are satisfied that if farmers would keep all the live stock that their farms could be made to carry, with our wonderful climatic facilities and adaptability for the growth of forage crops, that on most farms nearly all the fertilizer needed could be produced at home. It is true that farm-yard manure is lacking to some extent in the mineral elements needed in plant food and can be profitably improved by the addition of acid phosphate and potash, and to this extent money may wisely be expended in the purchase of these forms of fertilizers. We, however, realize as fully as any one can do that until the present system, or rather want of system, of *planting* rather than *farming* is abolished, that the purchase of commercial fertilizers is a necessity on most farms; but we feel that we should ill discharge our duty as advisers of the farmers, if we did not urge upon them the importance of getting out of this necessity, especially for the production of the staple crops, as soon as possible. Whilst the application of mixed fertilizers, when applied in sufficient quantity and of a high grade, may add to the yield of the staple crops, yet the almost universal experience is, that such increased yield is rarely sufficient to offset the cost of the fertilizers. When, as is usually the case, only a hundred or two pounds of some low grade fertilizer is applied per acre, we believe there was never yet any profit shown to result, and the money spent might just as well have been thrown away. In what we have said as to the use of commercial fertilizers, we desire it to be clearly understood that we have reference only to their use on the staple crops, such as corn, wheat and cotton, the market price of which is, by reason of world-wide competition, reduced at the best to little more than the average cost of production on naturally fertile land, except in seasons of drouth and scarcity. High grade commercial fertilizers can, when carefully selected to meet the soil and crop requirements, and where land to which they are applied is in a proper condition to hold moisture—that is to say, well filled with humus—be undoubtedly used in heavy dressings with large profit in the production of truck and small fruit crops and tobacco; products which have a relatively high market price as compared to the cost of production, and especially so when used to push truck crops to quick maturity for an early market. These being, as we conceive, the conditions under which the use of commercial fertilizers can be profitable, it may be asked what should the ordinary farmer do at this season of the year to put himself, as soon as possible, in a condition to be able to give up throwing money away on fertilizers. (Last year the Virginia farmers alone, it is estimated, spent nearly $5,000,000 on commercial fertilizers, a sum equal to three-fourths of the value of the wheat crop of the State.) We would say limit your purchase of fertilizers to the mineral elements, phosphoric acid and potash; buy these in the form of acid phosphate and the German potash salts, buy them of high grade, and use them when bought to make heavy growths of cow-peas, soja beans, and the clovers. In this way you will make feed for stock, and at the same time make permanent improvement in the mechanical and physical condition of your land, thus fitting it to become capable of producing crops of all kinds suitable to the section in a proper rotation and without requiring that each crop should have tagged to it a fertilizer bill. Once put into a position to feed live stock all the year round, and learning how to save and economize the manure made by the stock, the purchase of fertilizers, except for the production of truck crops and tobacco, will become a small factor on the ordinary farm. If to the adoption of this system be added that of the proper utilization of the cotton seed, as a feed and as a fertilizer in the cotton sections, a crop, the production of which now exceeds over 4,000,000 tons of seed per year, and which seed contains 125,000 tons of nitrogen, worth for enriching the soil $37,500,000; also 50,800 tons of phosphoric acid, worth as a fertilizer $7,112,000, and 46,800 tons of potash, worth to the soil $3,744,000, there is no reason whatever to doubt but that every acre of land in the South could, in a few years, be made fertile and productive, and millions of dollars be made and kept in our farmers' pockets.

Grass land, intended to be mown for hay, should have all stones and trash gathered off. It is a good practice to run the hay-rake or a bush or chain-harrow over the fields to gather up the trash which would otherwise be mixed with the hay when raked up. After this trash has been removed, a good rolling will

help to firm the land and induce an earlier and thicker growth. A dressing of nitrate of soda at the rate of 100 lbs. to the acre, applied in damp weather, just after the grass commences to grow, will greatly increase the yield of hay.

ALFALFA (LUCERNE.)

We are informed that parties in various sections of the South are testing the possibility of growing alfalfa (Lucerne). Among the greatest obstacles to success are weeds and crabgrass. These must be overcome or failure will result. The Kansas Experiment Station advises the following method of getting ahead of crabgrass:

In the spring, just before the alfalfa gets started, take a disk harrow, set it nearly straight and thoroughly disk the field, going both ways, and leave it in good shape to put in oats. This loosens up the ground, splits the old crowns, thereby thickening the stand, and gives the alfalfa new life, so that it grows in spite of crabgrass.

Many successful alfalfa raisers disk the alfalfa fields every two years, whether the crabgrass bothers or not, and consider it very beneficial. Alfalfa should never be put in a field that is foul with crabgrass or weeds. First clean the field by growing small grain or summer fallowing, and then use the disk harrow after it appears in the field. Care must be exercised in using the disk if the field is young, but at any time it will stand more of such treatment than would be supposed.

PEANUT GROWING.

Lime a Necessity.

We notice in the *Southern Planter* for February an answer from Prof. W. F. Massey, of the North Carolina Agricultural College, to a query by A. N. Cocks, of Prince George county, in which he makes the assertion, that his experiments show, that the sulphate of lime, which makes up the greater portion of all superphosphates, will take the place of the carbonate of lime usually applied for peanuts.

We trust none of our readers will be misled by any such assertions.

Lime performs three functions in the soil, two of which, sulphate of lime or land plaster, can perform, but the third cannot be performed by any other available material; these functions are to supply lime to the plant, to liberate potash, and the third and, to the peanut grower the most important by far, to sweeten the soil. All newly cleared land in the peanut belt is naturally sour. Clover will not grow at all, cow peas not half a crop, and peanuts, although making a fair growth of vine, will not make nuts at all until the acid has been neutralized, either by long cultivation or an application of lime or ashes, which have a large per cent. of caustic lime, along with from 3 to 7 per cent. of potash, which gives them their value as a fertilizer.

Heavy applications of phosphates have no appreciable effect in sweetening the soil; on the contrary, they seem to increase the acidity.

Professor Massey is one of the best, if not the best agricultural authority in the South, but like all who set themselves up to answer all questions asked, and are too honest to answer in a general way, must, as no one knows it all, eventually meet his "Waterloo."

The above clipping is from the Sussex *Standard*, published in the peanut country. Whether the editor has ever grown peanuts or not we cannot say, but he speaks as one having authority, and warns the people against heeding my notions about the matter. After having grown peanuts with every possible combination that suggested itself, I felt that I might undertake to answer Mr. Cocks, not in a general, but in a particular way. I would like to say to the editor of the *Standard* that although I offer to answer questions with the hope of aiding my fellow cultivators of the soil, I am very far from thinking that I "know it all." But things that I have worked out in the field I believe that I know, and do not hesitate to say so. The editor of the *Standard* is begging the entire question. There was no intimation that the land Mr. Cocks writes about is new land or that it is sour land. On the contrary, the land has been liberally marled and now has on it a fine growth of crimson clover, which he proposes to turn under for peanuts, and doing which I do not believe he will need any nitrogenous fertilizers. In his case an application of fresh lime would doubtless hasten the nitrification of the clover in the soil and thus help. But the notion that I have been trying to combat is the impression that lime is a direct fertilizer for the peanut crop. If I was planting new land or land that was full of humus and in an acid condition, I would apply lime, no matter whether the crop was peanuts or corn. I would do this as an essential prerequisite to getting the soil into a condition that would favor the growth of the nitrifying microbes in the roots of legumes, which will not thrive in an acid soil. But it has gotten to be a maxim among peanut growers that peanuts cannot be grown without lime, no matter what the condition of the soil. Now, there is no fact better known to the readers of the agricultural press than that I have always been one of the strongest advocates of the use of lime in the proper place. But then, there is no fact more apparent, so far as my observation among peanut growers in this State is concerned, than the fact that the peanut crop is not as large as it once was, and that the dimunition of the crop has been brought about by bad farming. They, like the cotton men, have simply been speculating on the chances with this or that fertilizer mixture without inquiring whether

they could not adopt a plan that would save this interminable buying of fertilizers for every crop planted. They apply lime to the land to be planted in peanuts because they have always been told that this is the thing to do, and they have, few of them at least, ever tried any experiments for themselves, and when one who has spent some years in experimenting with the crop and studying its needs, gives his opinion, based on such experiments, this editor rushes out to warn the farmers not to believe that fellow, but to go right along in the old ruts, right or wrong.

If a man's soil needs lime and is in a condition to receive benefit from the application, I am the last man to stop him putting the lime on. But what I want the farmer to do is to study his own conditions and to do what they demand, and not to apply anything by rote, as a matter of course, without ever inquiring whether it is necessary or not. If the peanut farmers were pursuing a well settled rotation of crops, there would be a place every few years on each field for a coat of lime. If I was growing peanuts on the level, sandy lands of Eastern North Carolina, I believe that I would practice some such rotation as the following: Beginning with the peanut crop, I would follow it with oats and Canada peas mixed, to be cut as a hay crop the following spring. I would then give the land a good dressing of acid phosphate and kainit in equal parts and sow it in peas, and cure these, too, for hay. I would sow rye on the pea stubble as a winter cover for the land, and during the winter would get out on it broadcast all the manure I could raise from feeding cattle on the hay and corn grown, and would expect to make an annually increasing profit on the cattle. I would turn the rye and manure over well and plant the land in corn. I would work the corn flat, rapidly and shallow, and would again sow either crimson clover among the corn, or in the event that failed would sow rye again, so as to always have a winter cover. This rye would be plowed for the peanut crop, and the manure buried for the corn would some of it be brought back to the surface. By this time, having a good deal of organic matter in the soil, I would apply a coat of lime so as to hasten the nitrification of this organic matter. This would give me a three-year rotation, and if the land is limed once in each second round of the rotation, or once in six years, it would be fully sufficient. I would apply acid phosphate and potash only for the peanuts, and in the whole course of the rotation I would never once think of buying an ounce of nitrogen, and I would confidently expect that the crops of all kinds would annually increase till I could feed enough cattle to cover a field annually with manure after making a good thing out of the cattle. I know this would be the case as well with the peanut as a money crop, as it has been with other crops grown in a properly arranged rotation. Doubtless I do not know all there is to be learned about the cultivation of the soil, but I have been trying for forty or more years to learn all I can. I may meet a "Waterloo," but no country editor will be the "Wellington," even if he does know that lime is essential to peanuts.

W. F. MASSEY.

INTENSIVE CROP EXPERIMENTS.

Editor Southern Planter:

Knowing the interest you take in diversified agriculture, and specially in the efforts to get the greatest number of crops and the best paying crops from equal acreage, fertilization and cultivation, and for the least expenditure, I concluded while Commissioner of Agriculture, to aid in this work by making personal experiments on these different points.

Since leaving the office of Commissioner of Agriculture and personal association with the State Board of Agriculture, which Board was composed during the ten years and part of the eleven I held the office, of the ablest, most conservative, and faithful body of intelligent and progressive farmers I have ever known, I have thought over, during my long vacation from sickness and weakness, a number of these practical experiments that were never published. You will recall three discussions carried on in the *Planter* with manifest interest to your readers, and I believe of great value to the agricultural interests of the State, between yourself and several distinguished gentlemen; one between yourself and Professor Massey, of North Carolina, in relation to the use and value of commercial fertilizers and home-made manures; one (a many-sided one) on the subject covered by the article I now give you; and one on the value of broomsedge grass for grazing and hay.

Now, on these three and some others, I made direct personal experiments, and President Corbin, of the State Board, advised me to publish them in my annual reports, but as I was not conceited, and had so many able essays and articles, which were read at our Farmers' Institutes, recommended by our Publication Committee, under the provisions of the law, as addenda to the reports, I generally gave these the preference and left out my own work.

As I have nothing now to occupy my time, I have concluded to give this to the *Planter*, as I have always believed its circulation outside the State would be as valuable to our immigration as its circulation in the State would be all important to farmers who chose to use their heads as well as their hands.

In making this experiment, I regarded the lands of the section where I then lived (at Ashland) as

about, in soil, climate and natural productions, as good as I could find for my purpose, having before me Prof. Whitney's soil survey and report to the State Board of Agriculture, giving the fullest and most comprehensive examination of Virginia soils ever made, and, properly considered, of more value to the truckers and planters of Middle Virginia and Tidewater, if not to the whole State, than any geological survey ever made.

In the spring of 1895 or 1896, I was living in Ashland, in Hanover county, 16 miles from Richmond, on the line of the R., F. & P. R. R., which runs from Richmond to Quantico on the Potomac, just along and just above the head of Tidewater, and therefore just about the cropping out of the granite formation across the State, cutting across this formation like a cut across the fingers of a hand if the wrist lay on the top of the Blue Ridge and the fingers went southeast down and under the alluvial lands of Tidewater.

The action of the ocean having filled the interstices between the fingers with deposits from the ocean tides of shells, sand, humus, and phosphates, while the streams coming down from the mountains brought down and mixed with these the decomposed potash and iron, rocks and clays and vegetable matter, and the basis of the fingers was rock overlaid with a good deep subsoil. This gave the section a most diversified soil, peculiar in many respects, and its location in regard to the Gulf stream and southwestern winds gave it a soft, mild climate, all shown in its natural productions in all ages, from its colonial days as the home of fine sweet tobacco to its present superiority as the finest trucking and berry land in the world.

For this experiment, I selected a piece of fairly fertile land about 40 feet square, covered it with mixed manure from cows and horses kept in a stable, fallowed well and prepared it for a planting of Early Ohio Irish potatoes putting about 300 lbs. to the acre in the drill of a good phosphatic and potash fertilizer.

The season was good, and with one good cultivation with a Planet, Jr. plow and the weeds pulled out of the drill, the crop grew well and made a fine yield.

When the potatoes began to ripen, and were being "grabbled" for the early ones, I planted a row of Jersey Wakefield cabbages between the potato rows. The land was clean, and these grew well and were properly worked. When the leaves began to curl, the potatoes were dug, and thus the cabbage was well worked and hilled. With another working of the cabbage, there was planted on the line of the old potato rows a row of red specked Valentine snaps, and these had their first working with the "Planet." The cabbage was fed off as needed, and was a fairly good crop. Another working had to be quickly given the snaps, for it was the heaviest growth and greatest yield I ever saw, and made more food for man and beast (two cows, several hogs, and a sow and pigs,) than any crop I ever made.

After I fed off this crop in August, I concluded to add to the area of land a piece of corn land, making it about one-fifth of an acre. Thus enlarged, I fallowed and harrowed and sowed in turnips and German clover, sowing with this last crop about 300 lbs. commercial fertilizer of good quality, containing phosphoric acid, potash and nitrogen, worth then about $30 per ton.

The result was a large crop of turnips, enough to keep two cows and a yearling through the winter with other feed; and when these were pulled and harvested, the German clover took possession of the land and was a luxuriant growth, quickly filling up all the places from which turnips were pulled. There was a splendid very early crop of clover and salad. Half the growth was soil fed, and the balance made into hay in May, and the land (clover stubble) was fallowed and put in corn, making a tolerably good crop.

I sum up this experiment as follows: Between March of one year and May of the next, there was, with one fallowing, one manuring, a slight and general fertilization, and less cultivation than would have been required for one crop of corn or tobacco; a really good crop of Irish potatoes, cabbage, snaps, turnips, and clover—five good crops—with salad and clover stubble as extra made, worth more for sale near a market, and more for food than corn or tobacco with oats or wheat following.

I am satisfied this can be done every year, or the land, diversified with other crops than cabbage and snaps, can be made equally profitable.

THOMAS WHITEHEAD.

Henrico Co., Va.

HOW SOME OF THE FERTILITY OF SOUTHERN SOILS SLIPS AWAY.

Editor Southern Planter:

There is an annual production of over 4,000,000 tons of cotton seed in the South. This seed contains 125,000 tons of nitrogen, worth, for enriching the soil, $37,500,000. It also contains 50,800 tons of phosphoric acid, worth, for enriching the soil, $7,112,000. It contains also 46,800 tons of potash, worth, to the soil, $3,744,000. This makes a grand total of $48,356,000, and this vast sum for what has, until very recent years, been considered in the light of a waste product.

Under the system of clean culture necessarily and unavoidably obtaining throughout the entire cotton belt in the culture of this important crop, considerably more fertility is washed away annually down into

the Gulf of Mexico than is contained in the entire annual output of cotton seed. The amount of fertility that is annually lost by being washed away, it is an utter impossibility to ever bring back; the most we can do in the premises is to try our level best, by terracing, circling and hill side ditches on upland, and a more complete and systematic as well as more thorough system of drainage and under drainage on low lands, to reduce this annual loss by washing to a minimum.

This truly enormous drain, although comparatively small and insignificant seventy-five or even fifty years ago, may be conservatively and safely claimed to have gone on until ten times the above amounts are irrevocably gone, past any, even the most remote, possibility of redemption. This would amount to 1,250,000 tons of nitrogen, worth $375,000,000; 508,000 tons of phosphoric acid, worth $71,120,000, and 468,000 tons of potash, worth $37,440,000; or a total of $483,560,000.

Just how much of this 40,000,000 tons of cotton seed was sold off the farm or otherwise made away with, at least to the extent of depriving the acres upon which they were grown of any and all benefit that might have been derived from them had they been scrupulously returned to those self same acres, we have no means of deciding; but from upwards of a quarter of a century of close observation, we know that the amount so returned is most insignificantly and ruinously small. The fact that the output of cotton is annually increasing, at the same time that the South in its entirety is annually becoming more nearly self-sustaining, while the trucking, dairy, fruit and live stock industries are also increasing in a ratio commensurate with that of the fleecy staple, speaks volumes, not only for the fertility of Southern soils, but also for the truly magnificant possibilities that lie before this Heaven-favored section, when restitution instead of spoliation shall be the order of the day.

Now a few words as to this restitution.

In a really good and fertile soil, nature has stored up, according to Prof. I. P. Roberts: Of nitrogen, 16,000 lbs.; of phosphoric acid, 4,000 lbs., and of potash, 8,000 lbs. in the surface foot of a single acre. On the other hand, we find from a consultation of Prof. Hilgard's tables, that a very poor and comparatively barren and sterile soil may contain: Of nitrogen, 1,750 lbs.; of phosphoric acid, 5,555 lbs.; of potash, 3,045 lbs., and of lime, 2,275 lbs., and yet be useless for ordinary purposes of agriculture. For purposes of our own, we will place these two tables side by side so they may be more easily compared.

Fertile Soil.	Sterile Soil.
Nitrogen, 16,000 lbs.	Nitrogen, 1,750 lbs.
Phos. acid, 4,000 lbs.	Phos. acid, 5,555 lbs.
Potash, 8,000 lbs.	Potash, 3,045 lbs.
	and of Lime, 2,275 lbs.

For some time past, we have been engaged in writing a series of articles on the necessity of first obtaining and then maintaining as perfect an equilibrium of fertility in any and all soils as possible, and in trying to show that this equilibrium was, is and always will be, actually essential in order to obtain best results, and that so essential, in fact, is it that best results cannot possibly be obtained in its absence. Now the question comes up, What is the matter with that sterile acre? Is its sterility due to the fact that it contains an actual excess of phosphoric acid? No. What, then, is the cause of sterility? It is undoubtedly owing to a deficiency of nitrogen and of potash; were these latter agents applied, to the extent of properly balancing this excess of phosphoric acid and bringing about a judicious balance of all the elements of fertility present in the soil, even if each and all were present in excessive amounts, abundant crops would be a perfectly natural and logical sequence.

Now, one of the points we wish to make—one of the objects we had in view in writing the present article—is to call attention to the fact that an actual excess of phosphoric acid has not even the slightest tendency toward making a sterile acre fertile. A thoroughly good and fertile soil may contain but 4,000 lbs. of phosphoric acid, and yet be fertile and productive; while an acre that contains 1,555 lbs. in excess of this amount, is barren and utterly useless for ordinary purposes of agriculture.

Now, without wishing to give undue prominence to either potash or nitrogen, and equally without wishing to decry or detract from the virtues of phosphoric acid, we would state that, on the major portion of the soils of the South, more especially the sandier portions and the old, well-worn soils that are in a semi-exhausted condition from too long cultivation in cotton and other clean hoed crops, are more deficient in nitrogen and potash than they are in phosphoric acid; while on our richest alluvials, the so called "made land" of our creek and river bottoms, where nitrogen is oftentimes found present in excess, phosphoric acid and potash are deficient; and on such soils, the more liberally these two latter agents are employed, within the bounds of reason, the more profitable the application.

A chain is no stronger than its weakest link; even so, the detritus of which our alluvials are composed can be no richer in mineral elements than their source, it is the organic matter washed down from above that makes them richer, and this same extra richness is a one-sided richness, being mainly nitrogen, and this excess of nitrogen demands imperatively a judicious and liberal, yet not necessarily prodigal, application of both phosphates and potash, and this to the extent of bringing about as nearly as practicable a perfect equi-

librium of all the elements of fertility on all such soils. For the sake of large and consequently profitable yields, if it is really necessary that there shall be an excess at all, we decidedly prefer that excess to be of phosphoric acid and potash, and never of nitrogen.

We are cultivating soils of this character to day, both in corn and cotton, and believe that man will have to hustle who beats us with either crop; none of our neighbors can do it; and the fact that we practice what we preach, we are forced to believe is the secret of our success. G. H. TURNER.

STUDYING CROP NEEDS.

Editor Southern Planter:

In speaking of crop needs we mean simply how much nitrogen, phosphoric acid and potash should be supplied to meet the demands. These ingredients are all taken up from the soil through the roots in a liquid condition. If the land contains an abundance of them, and they are not soluble, the plants will starve for lack of nourishment. A hungry plant surrounded by tons of insoluble plant food is no better off than a thirsty man in the middle of the Atlantic Ocean with only the salty undrinkable water at his disposal. The points to be remembered, then, are, first, crops must have their food in an available or digestible form; and second, a sufficiency must be supplied.

The insoluble nourishment in the soil can be made to become soluble by degrees through tillage and the use of stimulant fertilizers, such as lime, salt and plaster. It is neither wise nor economical, though, in the long run to exhaust the natural fertility of the soil. The time would surely come when it would not be possible to raise paying crops. Besides, it costs much less to keep up than to restore fertility.

Now, about the needs of crops. The amount of nitrogen, phosphoric acid and potash they remove will serve as a pretty fair guide as to how much should be supplied to prevent a drain on the soil. It is known that vegetables of all kinds consume considerable nitrogen and potash and but little phosphoric acid. A crop of 200 bushels of potatoes, for example, removes from the land about 50 lbs. of nitrogen, 70 lbs. of potash, and 25 lbs. of phosphoric acid, and to return these amounts, an application of 325 lbs. nitrate of soda, 150 lbs. of muriate of potash, and 200 lbs. of acid phosphate, would be required for each crop of potatoes.

Cabbage is a heavy feeder; 31 tons of heads per acre, which are often gathered, contain 150 lbs. of nitrogen, 300 lbs. of potash, and 90 lbs. of phosphoric acid; to renew this, 900 lbs. of nitrate of soda, 600 lbs. of muriate of potash, and 750 lbs. acid phosphate would have to be applied. Probably not one trucker in a thousand would think of using such a large quantity of fertilizer per acre, but it only goes to show that a knowledge of the needs of crops is necessary to serve as a guide in feeding intelligently. Many growers are using what they consider a large amount of fertilizer and still the land does not seem to produce as much as it ought. The whole truth is, that the amount supplied annually does not equal the amount removed, therefore the crops are gradually diminishing the reserve supply, and as this decreases the yield falls off accordingly.

All vegetables have the same general characteristics, so far as feeding is concerned. They want plenty of nitrogen and potash with little phosphoric acid; but in order to force them to maturity as early as possible, so as to enable the trucker to get the benefit of the high prices which prevail at the beginning of the season, particular attention must be paid to the forms of nourishment. It is essential that the food be immediately available, so as to advance the crops just at a time when they need a little pushing along. The ordinary acid phosphate or dissolved bone, and muriate of potash are all right, so far as the phosphoric acid and potash are concerned, but in the case of nitrogen all sources are not equally available. Tankage, fish scrap, blood, bone, manure, etc., have to decompose in the soil before they can be taken up by the plants, and as it cannot be estimated to a certainty just how long this requires, it is safer to use something quick acting, like nitrate of soda, which shows its effects almost immediately. For this reason, also, nitrate can be divided into several doses and used as top dressing during the growing season when the crops begin to lag.

There is nothing difficult about feeding plants, though a little study and discrimination often means a saving of many dollars. P. J. CHRISTIAN.

SORGHUM FOR HAY.

Editor Southern Planter:

Will Mr. Otey kindly give us his way of saving a mixed crop of cow-peas and sorghum, or corn, cut for hay?

I have a limited experience with sorghum, but find that cut when mature it does not dry, and used as I have used it, I do not want it dry. Last summer I raised a patch, cut and shocked it when the seeds were ripe. Afterwards we cut off the seeds, threw the stalks into piles, and fed them out as wanted to hogs and cows. It is grand feed.

The question is, had I mixed the sorghum with peas and tried to make hay, what would have happened?

Waldo Brown, of Ohio, makes sorghum hay successfully by sowing from one to two bushels of seed per acre, making a thick growth of small stalks and hardly any seeds.

I made some cow-pea hay; it moulded somewhat, but the cows devoured it. Shall try to make a lot of it next summer.

Louisa Co., Va. GEORGE CLENDON.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Inoculation for Leguminous Plants.

Having read Joshua Franklin's article on "Necessity for Inoculation when Starting Leguminous Crops," and Prof. G. C. Caldwell's address delivered before the Massachusetts Horticultural Society on the same subject, I concluded to write asking your opinion on the subject. Prof. Caldwell says in his address, "The substance used is called nitrargin; each bottle costing in this country $1.25, containing material enough to inoculate more than half an acre," &c. He says that "the nitrargin can be bought in New York, through agency, being manufactured in Germany." What do you think of the inoculation theory? If it will produce half the results Prof. Caldwell claims for it, it will revolutionize the fertilizer business.

I plant and sow a good many peas every year, and have examined the roots of my vines to see if they had the tubercles described, and have never found one on the peas, but the Spanish Pinder vines were full.

I will write Prof. Caldwell and learn who the agent in New York is.

Give us all the information you can on the subject, through the *Southern Planter*, and oblige,

Laurens Co., S. C. ROBT. C. DAVIS.

The study of the micro organisms that enable leguminous plants to acquire nitrogen from the air is still really in its infancy, and there is yet much for the man working in pure science to demonstrate for us who are occupied more with the application of his facts. There is nothing that so demonstrates the dependence of the cultivator on the man of pure science than this whole investigation into the organisms that give us nitrogen. There is too much of a tendency among those who claim for themselves the title of "practical" men to belittle the work of the men in the laboratory because they are not experts in the field. The cultivator owes a great debt to the men of pure science, and men of intelligence everywhere are learning that there is a great deal that can yet be learned by the cultivator from these laboratory investigations. Without them we would still be stumbling in the dark. We who are half scientists and half appliers of science understand these matters better perhaps than those entirely unlearned in scientific studies, and try to stand ready to translate into the language of the farm the results acquired by those who have the time to devote entirely to laboratory investigations. The patient work of the German scientists, and the minute investigations that have been carried on both in laboratory investigation and the field study of their results at Rothamsted, have added immensely to the knowledge of the farmer and gardener everywhere, and farmers of intelligence are rapidly abandoning all prejudice against what was formerly called "book farming," for they are beginning to realize that under modern conditions every farmer must be a student if he is to keep up with the advances in his profession. The making in the laboratory of pure cultures of the micro organisms that live with the various legumes and enable them to acquire the ærial nitrogen is one of the latest refinements of culture. Scientists have demonstrated that it is probable that each class at least of legumes, if not each legume, has its special form of organism, and that there seems to be to some extent an antagonism between the different forms. At least it seems to be a fact that the organisms that live on some legumes will not live and operate on other forms. It is probable that the organism that lives on red clover will thrive on any clover, but it does not seem certain that the clover organism will live on the pea and bean plants. Hence, the need of infecting the soil with the forms suited to each. We are not at all sure that there is need in the South for getting the artificial cultures for our cow peas. In every neighborhood, there are lands in which the cow-pea has flourished for generations, and in starting the culture of the cow-pea on a new piece of land it may be desirable to scatter lightly over the field, earth from an old field that has long grown the pea, and a very little will suffice. It has been found in the far South of the Gulf States that crimson clover is uniformly a failure the first year, but that the next year the same land will grow it successfully. This would seem to show that the land becomes infested by the seed first sown, but not soon enough to render that crop a success. We believe that the organisms can be conveyed by seed from localities where it flourishes. But the use of the artificial cultures, such as the one specially prepared from the clover plant, will make the crop a certainty more than to depend on the germs that may come with the seed. But as I have said, these experiments are, as yet, in their infancy, and need further study in the field. Cultivators should join heartily with the scientists, and try to demonstrate for themselves the truth of the theories. Land that fails to grow a legume may not fail because of lack of bacteria, but by reason of lack of lime, or potash, or other element in the soil that promotes the growth of the plant.

All these need study in the field, and we would not discourage experimentation on the part of the cultivator in any line. Nitrargin is at least hopeful.

W. F. MASSEY.

[The American agents for the sale of nitrargin are Victor Koechl & Co., 79 Murray street, N. Y.—ED.]

Shell Beans for Fall and Winter Use.

Will you kindly tell me, in next issue of the *Southern Planter*, which is the most profitable bean to raise in this section of the State and climate for shelling for fall and winter market, not particularly for the Southern market alone? How will the white bean, known as the soup bean, do here? The soil is of clay loam with clay subsoil. Some have said the black eye pea or bean, while others have advised the white variety. I would like you to give me full detail of the bean culture for this section—the most profitable kind, time of planting, marketing, and if two crops can be grown the same season.

James City Co., Va. WM. B. FETTER.

White beans of the class commonly sold are not well adapted to our Southern conditions. The humidity of the climate of the lower James will cause you to have a much larger percentage of damaged beans than the Northern growers. The best white bean I have ever tried for the South is the one spoken of in another letter in this issue, the Dutch Case-Knife bean. This is a pole bean, but not a very rampant climber, and in my boyhood was commonly planted in the corn-field, and allowed to climb on the stalks in a portion of the field so as to give a supply for shelling in winter. It is a flat bean, similar in shape to a small lima, but smaller still. There is no shelled bean of better quality.

There is no doubt that the black eye pea is about the best of the bean family for the South. I have a black-eye pea that easily makes two crops in one season—the first from April planting, ripening in July; and, second, from this crop, planted at once, ripens in September. Of course the flavor for table use, and the appearance of the cooked article, is very different from the white bean, but for my own eating, I greatly prefer the black eye pea to any bean grown for table use

Of course all the so-called Southern peas, of which the black-eye is probably the progenitor, are more like beans than the true peas, and should be treated as beans. We sow them, when grown for the seed, thinly in rows like garden beans, and wide enough to admit of horse culture. Being legumes, there is no need for heavy nitrogenous fertilization, but all the beans and peas are benefitted by a good dressing of acid phosphate and potash, and on land where they have not been grown before, it is well to give some ammonia to start them off. A very little nitrate of soda mixed with the other materials will suffice till they form root tubercles and can supply themselves with nitrogen.

A fair crop of black-eye peas can be made on land too poor to grow almost any other crop, but it will pay well to fertilize them. There is a large and growing demand for black-eye peas in all the Southern cities, and there is no difficulty in selling the dry crop at a good price. W. F. MASSEY.

Fertilizer for Chickahominy Low Land for Corn—Also for Irish and Sweet Potatoes.

Will you kindly answer the following in the March number of the *Planter*?

1. Please tell me what kind of fertilizer is best for corn on Chickahominy low grounds, and how much to apply; also, the best variety to plant. Am thinking of planting Cocke's Prolific. Land produces without fertilizer about four barrels per acre.

2. I have new ground sandy loam that has never been worked to plant in Irish potatoes. Please advise what kind of fertilizer is best to use. Have been using Mape's manures, but they are high priced. Do you think I could get a cheaper grade to pay me as well on such land? Have no barnyard manure to use. How much would you apply per acre; also best to use for sweet potatoes on such land, and how much to apply?

3. What fertilizer is best for White Navy Beans? How much to use per acre. What is the best time to plant beans?

Henrico Co., Va. GEO. GRAVES.

1. The Chickahominy low lands, so far as I have observed, are heavy and cold soil, rather of a pipe-clay nature, and need good underdrainage worse than fertilizers. While on some low lands of a different origin Cocke's Prolific may be the best, I am not sure that it will be the best on your low ground. The bottom lands of streams like the Chickahominy, which do not head in the mountains, are very different from those on the head waters of York river, and are deficient in many things the lands on other streams have. Of course I am judging simply by general observation, since I have had no experience in the low lands you name, but give the impressions of a passer-by. I know that there are some low lands near the C. & O. R. R., between Richmond and Old Point, that are different from those I have seen on the other side of Richmond, and there the Cocke's Prolific may do well. But where the land is stiff and cold, and inclined to be crawfishy, I do not think it will. On such land, I would plant an early hard dent or a flint or hominy corn. The best plan will be to select the corn that has been commonly grown on the land you refer to, and then, by a good process of selection, of which I have heretofore spoken, breed up a corn suited to the locality. I have said, time and again, that I have never made the cost of a complete fertilizer on the corn crop. If the land is in sod, you might make it pay to apply a dressing of acid phosphate and potash. While a nitrogenous fertilizer would start it off more rapidly, I do not believe that you could get much profit out of the increased crop. Cocke's Prolific, doubtless, will make four barrels per acre on land that is in a fairly good state without fertilizer, and it ought to be easy to get more than that with any properly bred up corn if the land is farmed properly. It is more a matter of drainage and good farming than of application of

commercial fertilizer. That land needs good preparation, and very rapid and frequent cultivation. If you are going to give it fertilizer, the following will be as good as any: Acid phosphate, 900 lbs., cotton-seed meal, 800 lbs., and muriate of potash 300 lbs. to make a ton. Use 400 lbs. broadcast, and leave out a little piece to see what you have made by the application.

2. On your sandy land for the potato crop, it is all the better for being new land, as potatoes do best on light new land, and on land that has a clover sod turned under if not new. Our truckers here use fertilizers very heavily for the early potato crop, applying from 1,000 to 2,000 pounds per acre of high grade goods. All the materials for mixing fertilizers are higher now that the trust has gotten hold of the trade. but the ready mixed fertilizers are higher too. You can mix a high grade article cheaper than you can buy the same quality. The following will answer well: Acid phosphate, 900 lbs., cotton-seed meal, 600 lbs., nitrate of soda, 100 lbs, and muriate of potash, 400 lbs., to make a ton. Work the fertilizer well into the soil in the furrows.

3. White Navy Beans are an extremely uncertain crop in your latitude. You can make more out of black-eye peas, for which there is a large and increasing demand. Either the beans or the peas (which are really more beans than peas), will do well with no fertilizer but acid phosphate and potash. About 200 lbs. acid phosphate and 25 lbs. of muriate of potash per acre. Plant either of them after the land is well warmed in late May. W. F. MASSEY.

Treatment of Young Orchard.

I have a ten-acre field which has been in grass for seven years; plowed it last spring to an average depth of ten inches, and planted corn, making seven (7) barrels to the acre. After harvesting this crop, the corn stubble was turned under and the field sown to wheat, and a few weeks later I planted out four hundred Winesap apples. Now, I would like you to advise me as to the best thing to do for this young orchard after the wheat crop has been harvested? I had thought to turn under the wheat stubble and drill soja beans broadcast—some to cut for long food and the remainder to be gathered by hogs.

Louisa, Va. W. R. GOODWIN.

You could hardly have a better preparation to ruin the young trees than to have them in wheat, or any small grain, during the early summer. The trees will need all the moisture they can get, and the wheat will pump it away from them as fast as it can. Good clean culture is what a young tree needs more than anything else. You ask what is the best thing you can do for the trees. The best thing is to plow under a good wide strip of the wheat on both sides of the tree rows, and keep it cultivated till July. Then plow the whole land and sow in crimson clover, to be plowed under the following spring. If the clover fails you will still have a chance to sow rye for turning under green in the spring. Or what will be better, perhaps, and more certain than the clover, will be to sow peas between the trees in July and plow them under when frost has killed the vines, and then sow rye for a winter soil cover to plow under in the spring. But no rye or any other winter grain should be allowed to mature in an orchard. The sowing of peas or any other soil cover in July will do no harm, because by that time the growth of the trees is complete for the season, and it is better to stop cultivation and to ripen the wood. Now, if the wheat is of more value to you than the trees, of course let the wheat remain. But I have simply advised what I consider best for the trees. An apple tree stunted at the start will never make the tree it ought to make with fair treatment.

W. F. MASSEY.

Cow-Peas for Improving Land.

I am greatly interested in your work through the *Southern Planter*, and would be pleased to have your advice on some questions regarding the cow-pea and improvement of land, which are of great importance to myself and, I think, to many other farmers in Grayson county.

I have an upland field, poor in soil and easily washed. It lays warm to the sun, and is perfectly smooth. It is rather a sandy soil mixed with red clay. Some call it "hominy gravel." It has very little grass on it, and has not been cultivated for six years. It is not hard to get a stand of grass on the land, but it will not last long. It is too poor to hold grass.

The plan I have in mind for improving this land is to plow as deep as possible in March or April, and sow in peas with fertilizer about the first of May. If peas do well. I intend plowing them under in the fall, and seeding to wheat, with timothy and clover.

What do you think of the plan? Also, what kind of peas and fertilizer should I use? Should I use fertilizer with both peas and wheat? Is it better to drill or broadcast the fertilizer? My idea in proposing to plow twice and get the land back in grass as soon as possible is to prevent washing.

Grayson Co., Va. J. B. BRYANT.

In your mountain country, the first of May will be entirely too early to sow cow-peas. Better wait till the land is well warmed, if it takes till June. Apply to the land 300 lbs. acid phosphate and 50 lbs. muriate of potash per acre broadcast after plowing and harrow well. Sow the peas at the rate of one bushel per acre, and cover with the Acme or Disc harrow. Do not roll, as that will incline the land to wash. Use the Black pea, or if you cannot get the black, the Whippoorwill. Now, as to whether it will be best to plow under the peas for wheat or not, is a question. They should not be plowed under till ripe and dead, and that will make the plowing so late that it will be

hard to get the land into the proper firmness for the wheat crop. If the improvement to the land and the getting a good stand of grass is the main object, and the crop of wheat is a minor one, the plowing under will be all right. But if the wheat crop is the chief object, then the peas should be mown for hay when well podded and the stubble only plowed for the wheat. In this case, where the land is thin and grass wanted to last well, I would fertilize the wheat also, using only a heavy dressing of acid phosphate, and nothing else. Four or five hundred pounds per acre of acid phosphate should insure you a fair wheat crop and a fine stand of grass. W. F. MASSEY.

Scab on Irish Potatoes—Celery-Growing—Soy Bean.

Will you kindly give me the following information through *The Southern Planter:*

1. Do you advise the dipping of Irish potatoes in a solution of corrosive sublimate before planting, and how treated?

2. Will you tell me how to grow celery for profit? I know nothing about the cultivation of this crop. My land is grey with yellow subsoil suitable for growing good rich yellow tobacco. I have branch bottom lands of this nature, sandy, which will grow five or six barrels of corn per acre. This, I have been told, will grow celery if rightly manured for this crop.

3. Can you grow the plants in the same method as tobacco plants? State best varieties.

4. Is the soy bean and soja bean one and the same, or are they distinct plants?

5. Will it be too early to plant soja beans in low grounds with corn from 15th April to 1st of May?

Pittsylvania Co., Va. A. C. TINSLEY.

If the potatoes are at all scabby or the land is infested with the scab fungus, it will pay to use the corrosive sublimate treatment. If the seed potatoes are clean and smooth and the land has not been in potatoes or beets, and no animal manures are used, I would not trouble about the scab. Stable manure will make potatoes scabby, so will lime or ashes, as these sweeten the soil and enable the fungus to thrive as it will not in an acid soil. Scabby seed may be cleaned by soaking for an hour and a half in a solution of corrosive sublimate of one ounce of the poison in nine gallons of water. It is better to treat the seed before cutting them. But we never practice this, as with clean seed and clean land and clean fertilizers there will be no trouble from the scab.

2. Your low land will grow good celery if properly manured and treated. It should be heavily manured for an early crop of some kind, say roasting ears or summer cabbages, so as to get the manure well incorporated in the soil. Do not be afraid of piling on the manure. August will be early enough to set the celery plants, as you cannot grow early celery like the Northern growers can, and should only attempt the winter crop. You can grow the plants by sowing in a tobacco bed in April and covering with cloth to shade them. Transplant them as soon as large enough to handle into another bed, and shade. Clip the tops from time to time to make them sturdy and stout. There are various ways of setting and growing the plant. Better get Peter Henderson's "Gardening for Profit" and study his methods. The soy and soja bean are the same. There are a number of varieties, and the medium early is about the best. You can plant them in April or as soon as frost is over.

W. F. MASSEY.

Pole Snap Beans

My land, a light sandy loam, lies well; would make one bale cotton to two acres without fertilizer. I want to grow pole snap beans for seed. Please advise.

1. Time to plant.
2. Distance, etc.
3. Fertilizer.
4. Cultivation, etc.
5. Probable yield. Variety among best yielders.

Alabama. S.

1. As soon as the soil is warm and frost over.

2. Run out furrows 5 feet apart. Put the fertilizer or manure in the furrow. Set good poles 3 feet apart in the furrows, and then throw a furrow from each side to the poles. Prepare the soil around the poles with rake and plant the seed. Plant four to a pole and thin to two.

3. While these beans are legumes, and hence may have some capacity for getting aerial nitrogen, we have found that all pole beans are benefitted by liberal manuring. This is especially the case with the lima beans. I have seen these in the hands of market gardeners kept year after year in the same place, and annually heavily manured with stable manure. I do not advise this practice, however, as it will usually result in more vines than beans. A little stable manure is, I find, an advantage to any pole bean, and if possible I would scatter a little in the furrows, or in the absence of stable manure would give the furrows a good dressing of black mould from the forest. On this I would scatter 400 lbs. per acre of a mixture of twelve parts acid phosphate, four parts cotton seed meal, and four parts muriate of potash.

4. Cultivation should be just about what you would give cotton, only do not bar off (and I hope that heathenish practice will be abandoned in the cotton field everywhere) and finish with the cotton sweep to slightly hill up.

5. This will depend on too many conditions of soil, weather and variety. I have grown thirty bushels of lima beans per acre, and most of the pole snaps will do far better, but you had better assume thirty bushels

to be the maximum crop, and not be suprised if you get a good deal less. I have found the Giant Wax bean the heaviest yielder. Have never grown it by the acre and cannot say what it may make. The Crease Back and Lazy Wife are good heavy yielders, too, and for a good white bean in your latitude there is nothing better than the old Dutch Caseknife. It makes a very white bean about half the size, or perhaps a little more than half the size, of the Sewee or small Lima, and is better suited to the Southern climate than any white bean I know, and fully as good for all the purposes of a dry bean as the Navy beans grown in the North. In fact, it will bring more money. I used to grow them in the cornfield, planting them with the corn and letting them climb the stalks. As they are not so tall growers nor so rank vine makers as the other climbing beans, they did not seem to injure the corn crop greatly.

W. F. MASSEY.

Rotation of Crops—Pasturage for Sheep.

I am greatly interested in rotation with legumes, etc.:

First. Can a poor field be farmed as follows, increasing in fertility each year: Now in rye, to be put into black peas, followed by oats and vetch, followed by peas, rye and vetch, and so on year after year, everything to be pastured by sheep or hogs, as the case may be? There are about six acres of oak woods fenced into the same field, plenty of water and woven wire fence around it all.

Second. Can a four-field rotation be followed as follows:

No. 1. Hay—Hay—Peas—Oats—Hay.
No. 2. Hay—Peas—Oats—Hay—Hay.
No. 3. Peas—Oats—Hay—Hay—Peas.
No. 4. Oats—Hay—Hay—Peas—Oats.

Hay mixture: Clover, orchard grass and meadow oat, black peas, grey winter oat. I want to feed everything for hay.

No. 3. Can the following plan be profitably carried out, and is the rotation a good one:

No. 1. Rye or Wheat—Clover—Pasture—Cow-peas—Oats and Vetch.

No. 2. Pasture—Corn, Peas—Oats and Vetch—Rye or Wheat—Clover.

No. 3. Corn, Peas—Oats and Vetch—Rye or Wheat—Clover—Pasture.

No. 4. Winter Oats—Wheat or Rye—Clover—Pasture—Corn, Peas.

No. 5. Clover—Pasture—Corn, Peas—Oats and Vetch—Rye or Wheat.

a. All manure to go on pasture field to go into corn.

b. Everything to be fed on the farm, except some flour made from the wheat for home use.

c. Oats and vetch to be pastured and then cut for hay.

d. Black peas to be sown in corn-field last working, and pastured off before plowing for grain crop.

e. South Carolina rock and kainit used on wheat or rye, and clover sown on grain crop cut one year and then pastured.

f. These five fields abut on a fifty-acre pasture, old sedge and Japan clover, native grasses in plenty, and water in large pasture of fifty acres; shade in plenty.

g. Object: Sheep raising; want to keep a flock of about fifty head—only Shropshires.

h. Lane to sheep barn, and entire five fields fenced with woven wire fence, dog-proof. I want to keep sheep in one lot every night at least.

i. Each lot or field contains about six acres.

Goochland Co., Va. W. ELLIOT HAMMOND.

1. There is no doubt that a field farmed under such a plan for pasturing at all times will increase in fertility, especially if an occasional addition is made of phosphoric acid to supply what the animals carry off.

2. This would perhaps be a feasible rotation if the hay is fed on the place and the manure returned to the soil, still with some addition of phosphoric acid. A farm that consumes all it raises and has the manure made from the consumption of its products returned to it can hardly fail to improve, if the waste of bone phosphate in the growing animals is kept good.

3. I would prefer to make a shorter rotation and not pasture the arable land at all. In fact, from your latitude southward I believe that the pea can take the place of red clover entirely and furnish more hay in the same time. Wheat followed by peas, cut for hay and followed by crimson clover in August, pastured some little in the spring and plowed under for corn with all the home made manure, then oats with acid phosphate, followed by peas and crimson clover again with acid phosphate and potash on the peas, and then corn again will give you more feed than a longer rotation with pasture. Your letter is hardly explicit enough. You mention various rotations and do not say whether you are considering these all in reference to the same piece of land, nor how much land. If your object is sheep raising only, you will need a great many more than fifty to make it pay to feed them all you can grow, though you do not say how much land you have. Had I a more explicit statement I could advise more intelligently. I just note that you have but six acres in each of five fields. I would much prefer to have three fields of ten acres each, and depend on the outpasture without pasturing the cultivated lands. I am not sure that we mutually understand each other, but will try again if necessary.

W. F. MASSEY.

Sorrel on River-Bottom Lands—Cow-Peas—Lime.

River-bottom lands are inclined to take in sheep sorrel and broomsedge after being in grass several years; indeed, it is almost impossible to get a stand of clover on them now. The soil is a sandy loam. What can I do to prevent these pests getting the best of my grass? Have tried cow-peas, and on some of the land raw bone at the rate of 400 lbs. to the acre, but they do no permanent good. The land is fairly productive, not subject to overflow, and usually makes

fair crops of tobacco, corn and wheat. I have twenty acres of this land, off which wheat was cut last harvest; yield not as good as usual, although 400 lbs. raw bone to the acre was applied. No grass, but a fine stand of sheep sorrel. I am thinking of putting this land in cow peas and applying lime. What do you think of this? When ought the lime be applied, and how much per acre would you apply? Would you advise mowing the peas for hay, or turning under the whole crop?

Would seeding Kaffir corn with peas to hold vines up tend to make the growth ranker, and would it be any advantage?

2. Will German kainit applied to heavy clay sod land that has always been infested with cut-worms and wire worms, prevent their devastations on young tobacco plants, of which they usually get the better for a time, making the stand irregular?

Please answer these questions through the March number of the *Southern Planter*. I always enjoy your articles. JAS. A. PETTIT, M. D.

Nelson Co., Va.

I would plow this land and prepare it for corn, and after it is plowed and before planting the corn I would spread about 30 bushels per acre of freshly slaked lime, and harrow it before laying off the corn rows. It is evident that this is what the land needs. Not that the sorrel is acid because of the acidity of the soil, but because some plants, like sorrel and broomsedge, can grow on an acid soil, while clover and other legumes will not thrive till it is sweetened by lime. The sorrel does not derive its acidity from the soil however, as the acid (oxalic) is the product of the assimilative organs of the plant and comes from the air. But it does not mind an acid soil while other plants do. If the soil is sweetened by lime, the clover will be able to overcome and crowd out the sorrel. If the land is cultivated in a regular rotation of crops and lime is used about once in five or six years, there will not be the trouble from sorrel or broomsedge, as the better grasses and clover will master them. Of course, you can sow peas on the land instead of putting it in corn if you wish, and the lime will be all right for them. If you sow peas, I would by all means cut them for hay, for land of that character does not particularly need them plowed under, and you cannot afford to plow under a crop of feed worth at least $20 per acre for food, and from which, by a careful saving of the manure, you can recover 75 per cent. of the value as manure in the droppings.

2. I do not believe that kainit will have the effect you name, and it would damage the quality of the tobacco seriously. Kainit, though it has potash in the form of a sulphate, has so much chlorine associated with it that it acts as a muriate or chloride on the tobacco. Then, too, as a source of potash, you cannot afford to use kainit so far from the seaboard. Kainit has but 12 per cent. potash, and to get this small percentage you will have to freight the rest of the material in the form of common salt, which you do not need. For tobacco, you want a high grade sulphate. This has at least 50 per cent. of potash, and will be far the cheaper form. In your soil, there is a great abundance of potash in the form of an insoluble silicate. If lime is regularly used in a rotation it will enable you to get this potash more rapidly, and save the cost of so much potash. Still it may not do away altogether with the necessity of buying potash for tobacco, which needs a full supply. The best way to manage the cut worms is to mix Paris green with bran, about one part of the poison to fifty parts of the bran or more. Dampen the mass so that the poison will adhere to the bran, and then scatter rows around the plants in the field, or string it along in lines between the rows near the plants. The cut worms are fond of the bran, and will be largely poisoned by it.

W. F. MASSEY.

Permanent Grass.

Will you kindly answer what I should do to obtain good permanent grass for cow and horse. The land is low, black soil, and for twenty years has been only used as a pasture, but is very poor in grass. I have no barn-yard manure to apply to it.

Quebec, Canada. CHS. BELLERIVE.

We would advise you to sow as early as you can work the land in the spring, a mixture of grasses. Say, 10 lbs. of Orchard grass, 5 lbs. Red Top, 5 lbs. of Tall Meadow Fescue, and 5 lbs. Kentucky Blue grass. The orchard grass and fescue will be inclined to grow in tussocks, and the red top and blue grass will fill in till after a while, if you give the pasture an annual dressing of raw bone meal, you will have blue grass entirely.

W. F. MASSEY.

Grasses for Hay and Pasture.

While I live in Illinois I have a farm of 240 acres of land in Alabama. It is upland, but not rocky on the top. It is a light sandy soil. I would like for you to answer the following in the next issue:

1. I want to get it all in grass, either for pasture or hay, and don't care how much it spreads or how soon it takes the land, so that it will either make good grass for hay or pasture. Is Johnson grass a good hay grass? Do stock like it and do well on it? Also, what about Bromus Inermis. Will it make good hay or not? The seedsmen puff it up. On that part of my land for pasture, I expect to leave some of the trees standing, but it will be so that the sun will get in some time in the day. Can you give me a good grass for that part for pasture? Will Bur clover do in the South? Up here I cannot get any stock to eat it. This month I will sow about two acres of Johnson Alfalfa and Bromus Inermis mixed. What about it?

2. Angora goats—I tried to find some—and after a time I got two billys and one nannie—and bought some common goats to run with them. I have several

half breeds. Can you tell where the wool or hair can be sold, and if the goats can be sold on the market? I can find no report in the papers for either goat's wool or goat meat.

Alabama. C. H. HATHAWAY.

P. S.—Will say I want to move South soon as I can get farm in grass. I have out ten acres of Bermuda, and will put out ten more this spring. I use roots; seed is no good. My farm is at Mountain Home, Alabama.

1. Johnson grass is really a sorghum, and on land suited to it makes a heavy growth. When cut just coming into bloom it makes nutritive hay, but is not a pasture grass. The objection to its growth is its aggressiveness. It spreads both by the root and by seed, and in many sections is for this reason deemed a nuisance. In some sections it has been said that the man who introduced it ought to be sent to the penitentiary. Unless you are disposed to give the land wholly to this grass, and can prevent it spreading on to adjoining farms, you ought not to plant it.

Bromus Inermis bids well to become one of our most valuable grasses. It should be seeded alone. It is growing well in this State. We had a sod of the grass sent to us in December seeded in September which was three or four inches high and as thick as well could be on the ground. Johnson grass, Alfalfa and Bromus Inermis are not at all suitable for seeding together. They should each be sown alone. Burr clover grows readily in the South, but there are much better varieties which will grow equally as well with proper preparation and care. It really only ought to be used for an improver of the land, as stock do not like it.

2. Angora goat wool is readily saleable in Boston. Write some wool merchant there. The meat of goats is rarely found on the American markets except as mutton. It is often sold for this, and when young makes good eating, and is a good substitute for mutton.—ED.

Sweet Potatoes—Keeping Butter—Canada Field Peas—Bird Houses.

1. In Bulletin No. 26, issued by the United States Agricultural Department, and entitled "Sweet Potatoes; Their Culture and Uses," an account is given of a variety called "Providence," which produces 200 or 300 more bushels per acre than any of the other varieties. Where may the variety be bought? Who has it?

2. How may butter be put away now so as to keep well until June, when we will have good sale for it?

3. Will Canadian field peas seeded during January in Tidewater Virginia mature seed next summer so they may be used for sowing next fall? It is said here that Canadian field peas will not mature seed in this climate.

4. What nesting boxes should be put up for wrens, swallows, bee martins, and other birds which are fond of men's dwellings? Each bird, I judge, has different views of its home as compared with the homes of other birds. I am anxious to get all the birds possible about the house and grounds. I love the birds, and the more birds we have about the less trouble we have in the garden with insects.

Westmoreland Co., Va. B. A. H.

1. We do not know where this variety can be had, but probably from some of the seed merchants in Louisiana, Texas or Florida, as it is said to have originated in Florida. Possibly Prof. Price, of the South Carolina Experiment Station, Clemson College, S. C., who has written a book on the sweet potato, could tell you. We notice that in tests made in Texas and Louisiana the Providence did not make nearly so large a yield as many others.

2. Butter may be kept until summer if well made and the milk carefully washed from it and packed down in tubs or crocks, covered with tight lids, and stored in a cold cellar. Others preserve it by making it in rolls or lumps and putting these into brine and keeping them covered with it in a cool place.

3. Canada field peas will mature the seed in Virginia, if not attacked by mildew, to which disease they are very subject when the hot weather sets in. We do not advise the sowing of seed from Canada peas here as the seed brought from Canada is so much more productive and the vines more vigorous.

4. We cannot answer this query. We desire, however, by every means to encourage the repeopling of our woods and gardens with birds. They are the best friends of farmers and gardeners, and we are suffering from their wanton destruction. They soon find out where they are welcome guests and there make their homes. We would like to see every gun taxed, and thus put an end largely to the wanton shooting of birds by idle boys and men.—ED.

Temperature of Cream for Churning.

Can you kindly tell me correct temperature for cream to be when churned? MRS. J. H. C. B.

Essex Co.

The cream should in winter be at a temperature of from 60 to 62 degrees. In summer from 58 to 60 is better. Much depends upon the period of lactation of the cows, from whence the cream is obtained, as to whether the butter is slow or long in coming at these temperatures. When cows have been long in milk it is well to raise the temperature a little above the normal. Sometimes it is also desirable to thin down the cream before churning to lessen its viscosity and thus make it easier for the globules of butter fat to separate from the cream. The temperature of the room in

which the churning is done should also be carefully watched, so as to keep it at or about the temperature of the cream when put in the churn. If it is much higher than this the temperature of the cream in the churn will rise too high for the best butter to be made. —Ed.

How to Ascertain the Ages of Cattle and Sheep.

Can you tell a certain way to tell the ages of cattle and sheep?

Berkley Co., S. C. S. G. H.

The teeth afford a certain method of ascertaining the age of cattle and sheep until after the mouth becomes full of the permanent teeth. At two years of age or a month or two earlier the middle sucking teeth are changed for two permanent broad teeth. A year later the next teeth on each side of the centre ones are changed in like manner, and so on each year until all the sucking teeth are gone.—Ed.

Box Hedge.

Will you kindly tell me the best fertilizer for a box hedge. For a long time our hedge has been our pride; it seemed to flourish without care, except trimming and watering, but last summer great bunches of it died.

Suffolk Co., Mass. Albert G. Keith.

The chances are that it is not soil exhaustion that ails the box, but that some scale insect has attacked it. You had better send specimens of the affected plants to your State experiment station, at Amherst, Mass., and get them to advise you. Sometimes an old box hedge will get decrepid from crowding, and it is then better to take up the whole and divide, and reset, preparing the soil well and manuring with decomposed stable manure. There is no fertilizer better than this for the plants.

W. F. Massey.

THE IRRIGATION PROBLEM.

Editor Southern Planter:

The most important problem before the professors of agricultural science to-day is how to secure a regular supply of moisture at times when the skies are dry and the soil athirst in the short and fitful, but severe spells of drouth.

The necessity of a regular supply of moisture is admitted in every direction, but how to obtain it, and at the same time in an inexpensive, practical and controllable manner, is the question.

Dr. Stubbs, Director Louisiana Experiment Station, says that "few years furnish water enough during the growing season for developing the maximum crops the soils can produce;" that "two seasons out of five the rainfall in Louisiana is deficient." The same is true all over the country. Bulletin 94 of the United States Department of Agriculture, states that "frequently dry weather continues so long that it is impossible to preserve sufficient moisture" for garden crops. Bulletin 129, Cornell Experiment Station, asserts that "water and its constituents are the chief components of every crop the farmer produces, and if not to be had other fertilizing is useless." Bulletin 120, Cornell (N. Y.) Experiment Station, says: "Hardly a season passes in which some important crop is not reduced in yield from 50 to 75 per cent. because of a lack of sufficient moisture."

Professor King, of Wisconsin Agricultural Experiment Station, author of the latest and most pretentious work upon irrigation, states that "it is impossible to over-estimate the importance of water as plant food. It is indispensable and is used more than any other substance." Again: "Thorough and careful irrigation in most parts of the United States would more than double the average yield of almost all crops now raised." Again: "The density of the population is not yet great enough to consume the increased product which would result from thorough irrigation."

But what is the remedy offered? Prof. Voorhees, of the New Jersey Experiment Station, coolly informs the farmer that to properly irrigate ten acres he must raise 66,000 gallons of water per day, and to do that will require an outlay of $3,500 to $4,500. Prof. King states that he watered a field of corn in 1895 every seven to nine days, and applied 125,000 gallons per acre each time.

If this is all that science and hydraulic engineering can give the farmer as a solution of the irrigation problem, we may as well give up the hope. No farmer can afford to pay $35 to $45 per acre to construct an irrigation system. But I say, in all candor and seriousness, that this is an unnecessary outlay, a very unreasonable proposal, and entirely unworthy of modern science. The application of one thousand gallons of water per day per acre is ample for any crop, and a plant to raise and apply this to ten acres can be provided for $250.

One thousand gallons of water applied every night upon each acre in the form of a heavy dew or gentle rain is ample, and this can be so applied, and the hydraulic engineer is called upon to do it, and the scientific agriculturist to gainsay it.

S. S. Boyce.

The colt's usefulness will depend largely upon the feed and care given during the first year of its life. Feed for good bone and a large development of muscle. Both depend largely upon the character of the food given.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

It is still too early except in the Gulf States to sow or set out the main crop of vegetables; but it is not too early to be making every preparation to fit the land to receive the seed and plants. Every opportunity should be availed of to cultivate the land and thus ærate and warm it and reduce it to a fine tilth. Manure and phosphatic and potassic fertilizers should be got onto the land as soon as possible and be well and thoroughly mixed with the soil, and in doing this work, *do not spare the manure and fertilizers.* Vegetables, to be good, must be grown quickly, and this cannot be done unless they have plenty of available food at hand. The root system of most vegetables is not large. They cannot forage for food, but must have it right where they are planted. Many of the vegetables are also gross feeders, hence the further necessity for heavy fertilization. The pleasure, nay the necessity, of having an abundant supply of vegetables of all kinds, if the meals are to be appetizing and satisfying during the hot weather, is so great that we cannot think it necessary to say more than that every effort ought to be willingly made to achieve this end.

If your garden is not already made, lose no time in taking the work in hand so that it may be off your hands before work in the field presses. See that it is made in a spot convenient to the house, so that the female members of our family may not have to lose time in going to it for the crops when needed in the house. Fence it in securely with a hog- and poultry proof fence, and before you leave it for the general work of the farm, see to it that the first crops are planted and the ground laid out for the others so that they can be put in with little loss of time when time is more pressing than in the early spring. Lay off the land for the various crops in long rows, so that they can be worked easily with the cultivator.

Irish potatoes and English peas may be planted as soon as ever the land is dry and fit to work. In our last issue will be found further information on these crops.

Fall-planted cabbages should be encouraged to make growth by cultivation as soon as the land can be worked, and when growth has started they may be stimulated by a top dressing of nitrate of soda of 75 or 100 lbs. to the acre.

Cabbage plants raised in hot beds or cold frames should be hardened off gradually so as to fit them to be set out as soon as possible.

Small sowings of radishes, lettuce, beets, spinach, spring kale, carrots, parsnips, parsley and onions may be made towards the end of the month, but do not make the sowings of the main crops until next month.

Make up hot beds for striking sweet potato plants and for raising tomatoes, egg plants, peppers and early canteloupes.

In the small fruit garden and vineyard, see that all canes are staked and tied up to trellises.

Strawberries should be mulched around the plants to keep the fruit clean. Pine-tags and marsh hay cut before the seed formed make the best kind of mulch. If the plants are not well grown and appear weakly, a top dressing of nitrate of soda will help them, but do not apply it too heavily, or it will make the leaf growth too abundant.

ORCHARDING IN SOUTHWEST VIRGINIA.

Editor Southern Planter:

I would not be without the *Planter* for ten times its cost. The hints on horticulture and orcharding are especially valuable to me. I do not know of anything that holds out for Southwest Virginia a safer investment than to buy fifty or one hundred dollars worth of thrifty two-year-old apple trees of varieties suited to the soil and climate where they are to be planted. Most orchards are ruined by planting too many varieties. An orchard for profit should not exceed six varieties, and for Southwest Virginia I would recommend Winesap, Ben Davis, York Imperial, Rome Beauty, Grimes' Golden and Virginia Beauty—all belonging to the red class except Grimes' Golden, which is a golden yellow, and one of the best flavored and most profitable apples in cultivation.

Cherries do well on our dry sandy soils, and would be profitable were it not for the thousands of English sparrows. I would be glad to hear from some one on the good or evil of the English sparrow as an American bird. Let's hear from some one through the *Planter.*

JAKE.

Scott Co., Va.

SPRAY PUMPS.

Referring to the Spray Calendar, published elsewhere in this issue, we would suggest that, in order to make spraying effective, it should be done thoroughly and with good spraying apparatus. Advertisements of same will be found in the advertising section of this issue.

SPRAY CALENDAR.

Spraying has become one of the regular operations in horticulture, and the literature upon the subject is scattered and sometimes confusing. This *working schedule* has been arranged in response to requests from our correspondents. It is intended to be tacked up in a convenient place for frequent reference throughout the year, and shows briefly, and at a glance, *what is worth doing* with certain crops which are in danger of loss by fungus or insect depredations. When using a fungicide for a fungous disease mentioned, other fungi, if present, will be also controlled. So, likewise, the use of an insecticide will destroy other insects besides those mentioned. Directions which are *most important* are italicised. In general, these directions are the best which can be given in such compact form: after one year's trial, experience will suggest improvements for individual use. *Preventives* should be applied regularly to insure crops. *Destructives* need not be applied unless the enemy appears. *Provide spraying apparatus before spring arrives. Spray promptly, thoroughly, and faithfully.*

PLANT.	First Application.	Second Application.	Third Application.	Fourth Application.	Fifth Application.	Sixth Application.
APPLE. (*Scab, codlin moth, bud moth.*)	When buds are swelling, copper sulphate solution.	*Just before blossoms open, Bordeaux. For bud moth, Arsenites when leaf buds open.*	*When blossoms have fallen, Bordeaux and Arsenites.*	*8–12 days later, Bordeaux and Arsenites.*	10–14 days later, Bordeaux.	10–14 days later, Bordeaux.
BEAN (*Anthracnose or pod-spot.*)	*When third leaf expands, Bordeaux.*	*10 days later, Bordeaux.*	14 days later, Bordeaux.	14 days later, Bordeaux.		
CABBAGE. (*Worms, aphis.*)	*When worms or aphis are first seen, Kerosene emulsion.*	7–10 days later, if not heading, renew emulsion.	*7–10 days later, if heading, hot water 130° F.*	Repeat third in 10–14 days if necessary.	(When plants are small, Arsenites may be used to check worms.)	
CHERRY. (*Rot, aphis, slug.*)	As buds are breaking, Bordeaux; when aphis appears, Kerosene emulsion.	When fruit has set, Bordeaux. If slugs appear, dust leaves with air-slacked lime. Hellebore.	10-14 days, if rot appears, Bordeaux.	10-14 days later, Ammoniacal copper carbonate.		
CURRANT. (*Mildew, worms.*)	*At first sign of worms, Arsenite.*	10 days later, Hellebore *If leaves mildew, Bordeaux.*	If worms persist, Hellebore.			
GOOSEBERRY. (*Mildew, worms.*)	*When leaves expand, Bordeaux.* For worms as above.	*10–14 days later, Bordeaux.* For worms as above.	*10–14 days later, Ammoniacal copper carbonate.* For worms, as above.	*10–14 days later, repeat third.*		
GRAPE. (*Fungous diseases, flea-beetle.*)	In Spring when buds swel, copper sulphate solution. *Paris green for flea-beetle.*	*When leaves are 1–1½ inches in diameter, Bordeaux. Paris green for larvæ of flea-beetle.*	*When flowers have fallen, Bordeaux. Paris green as before.*	*10–14 days later, Bordeaux.*	10–14 days later, if any disease appears, Bordeaux.	10–14 days, Ammoniacal copper carbonate Make later applications of this, if necessary.
NURSERY STOCK. (*Fungous diseases.*)	*When first leaves appear, Bordeaux.*	*10–14 days, repeat first.*	10–14 days repeat first.	10–14 days, repeat first.	10–14 days, repeat first.	10–14 days, repeat first.
PEACH, NECTARINE, APRICOT, (*Rot, mildew.*)	*Before buds swell, copper sulphate solution.*	Before flowers open, Bordeaux.	*When fruit has set, Bordeaux.*	*When fruit is nearly grown, Ammoniacal copper carbonate.*	*5–10 days later, repeat fourth.*	5-10 days later, repeat fourth, if necessary.
PEAR. (*Leaf blight, scab, psylla, codlin moth.*)	As buds are swelling, copper sulphate solution.	*Just before blossoms open, Bordeaux. Kerosene emulsion, when leaves open, for psylla.*	*After blossoms have fallen, Bordeaux and Arsenites. Kerosene emulsion if necessary.*	*8–12 days later, repeat third.*	10–14 days later, Bordeaux. Kerosene emulsion applied forcibly for psylla.	10–14 days later, repeat fifth, if necessary.

For Aphides or Plant Lice, use Kerosene Emulsion on all Plants. Peach Trees affected with "Yellows" should be destroyed and burned. Fire Blight on Pears or Quinces, sow late in September.

PLUM..... (*Fungous Diseases, curculio.*)	*During first warm days of early spring, Bordeaux for black knot. When leaves are off in the fall, Kerosene emulsion for plum scale.*	*When buds are swelling, Bordeaux for black knot and other fungous diseases.* During mild winter Kerosene emulsion for plum scale.	*When blossoms have fallen, Bordeaux. Begin to jar trees for curculio. Before buds start in spring, Kerosene emulsion for plum scale.*	*10-14 days later, Bordeaux. Jar trees for curculio every 2-4 days.* For San Jose scale, Kerosene emulsion when young appear in spring and summer.	*10-20 days later, Bordeaux for black knot. Jar trees for curculio.* When young plum scale insects first appear in summer, Kerosene emulsion.	*10-20 days later, Bordeaux for black knot. Later applications may be necessary to prevent leaf spot and fruit rot, use Ammoniacal copper carbonate.*
POTATO..... (*Scab, blight, beetles.*)	*Soak seed for scab in corrosive sublimate solution (2 oz. to 16 gals. of water) for 90 minutes.*	*When beetles first appear, Arsenites.*	*When vines are two-thirds grown, Bordeaux; Arsenites for beetles if necessary.*	10-15 days later, repeat third.	10-15 days later, Bordeaux if necessary.	
QUINCE..... (*Leaf and fruit spots.*)	When blossom buds appear, Bordeaux.	When fruit has set, Bordeaux and Arsenites.	10-20 days later, Bordeaux.	*10-20 days later, Bordeaux.*	*10-20 days later, Bordeaux.*	
RASPBERRY..... BLACKBERRY..... DEWBERRY..... (*Anthracnose, rust.*)	Before buds break, copper sulphate solution. Cut out badly diseased canes.	During summer, if rust appears on leaves Bordeaux.	Repeat second if necessary.	*(Orange or red rust is treated best by destroying entirely the affected plants.*		
STRAWBERRY..... (*Rust.*)	*As the fruits are setting, Bordeaux.*	As first fruits are ripening, Ammoniacal copper carbonate.	*When last fruits are harvested, Bordeaux.*	Repeat third if foliage rusts.	Repeat third if necessary.	(Young plants not in bearing may be treated throughout the fruiting season.)
TOMATO..... (*Rot, blight.*)	At first appearance of blight or rot, under glass or out of doors, Bordeaux.	Repeat first if diseases are not checked.	Repeat first when necessary.			

Search for Borers in Fruit Trees in Fall and Spring. To avoid the Hessian Fly in Wheat, and Black Knots on Plums or Cherries, should be cut out and burned as soon as discovered.

FORMULAS.

Bordeaux Mixture.

Copper Sulphate.....6 pounds.
Quicklime..... 4 pounds.
Water.....40-50 gallons.

Dissolve the copper sulphate by putting it in a bag of course cloth and hanging this in a vessel holding at least 4 gallons, so that it is just covered by the water. Use an earthen or *wooden vessel.* Slake the lime in an equal amount of water Then mix the two and add enough water to make 40 gallons. It is then ready for immediate use, but will keep indefinitely. If the mixture is to be used on peach foliage, it is advisable to add an extra pound of lime to the above formula. When applied to such plants as carnations or cabbages, it will adhere better if about a pound of hard soap be dissolved in hot water and added to the mixture. For rots, molds, mildews, and all fungous diseases.

Ammoniacal Copper Carbonate.

Copper Carbonate..... .....1 ounce.
Ammonia..... .....Enough to dissolve the copper.
Water.....9 gallons.

The copper carbonate is best dissolved in large bottles, where it will keep indefinitely, and it should be diluted with water as required. For the same purposes as Bordeaux mixture.

Copper Sulphate Solution.

Copper Sulphate.....1 pound.
Water..... .....15 gallons.

Dissolve the copper sulphate in the water, when it is ready for use. *This should never be applied to foliage, but must be used before the buds break.* For peaches and nectarines, use 25 gallons of water. For fungous diseases.

Paris Green (Arsenites).

Paris Green.....1 pound.
Water.....200 300 gallons.

If this mixture is to be used on peach trees, one pound of quicklime should be added. Repeated applications will injure most foliage, unless lime is added. *Paris green and Bordeaux mixture can be applied together with perfect safety.* Use at the rate of 4 ounces of the arsenites to 50 gallons of the mixture. The action of neither is weakened, and the Paris green loses all caustic properties. For insects which chew.

London Purple.

This is used in the same proportion as Paris green, but, as it is more caustic, it should be applied with two or three times its weight in lime, or with the Bordeaux mixture. The composition of London purple is exceedingly variable, and unless good reasons exist for supposing that it contains as much arsenic as Paris green, use the latter poison. Do not use London purple on peach or plum trees, unless considerable lime is added. For insects which chew.

[FORMULAS CONTINUED ON NEXT PAGE.]

Avoid "Club-Root" in Cabbage, Cauliflower and Turnips by strict rotation of crops, and burn all affected material.

Hellebore.

Fresh white Hellebore.....1 ounce.
Water.....2 gallons.

Apply when thoroughly mixed. This poison is not so energetic as the arsenites, and may be used a short time before the sprayed portions mature. For insects which chew.

Kerosene Emulsion.

Hard soap.....½ pound.
Boiling water.....1 gallon.
Kerosene.....2 gallons.

Dissolve the soap in water, add the Kerosene, and churn with a pump for 5-10 minutes. Dilute 10 to 25 times before applying. Use strong emulsion for all scale insects. For insects which suck, as plant lice, mealy bugs, red spider, thrips, bark lice or scale. Cabbage worms, currant worms, and all insects which have soft bodies, can also be successfully treated.

Raupenleim.

Raupenleim (caterpillar lime) is a German product which has proved very success-ful against many insects. It is a very sticky black substance, obtained from crude petroleum and has a strong tar like odor. A thick band of it on a trunk of a tree will remain sticky for several weeks, and catches all insects which attempt to cross or puncture it. It can be obtained in this country of Messrs. Wm. Mensel & Son, 64 Broad street, New York city, for $3 75 per keg of 25 lbs. One pound will cover the whole trunk of a tree 4 to 5 inches in diameter.

VIRGINIA STATE HORTICULTURAL SOCIETY.

Notes of Discussion at the Recent Annual Meeting at Staunton.

In our last issue will be found a report of the business transacted at the annual meeting of this Society.

The following notes are made of the discussion on papers read and addresses made on subjects of interest to fruit growers:

On the question of "Home Remedies for Orchard Pests," Dr. McCue said that stock was often diseased when bought, and should be carefully examined. The woolly aphis is difficult to combat. He, however, succeeded in destroying it by placing strong hickory ashes around the roots of the trees every year. He advised the dipping of the twigs in kerosene oil. As a fertilizer for the orchard, he advised the use of muriate of potash at the rate of 500 lbs. to the acre sown broadcast, but applied more thickly under the trees. Mr. Walter Whateley advised the use of the lye spray for small insects on the trees. Professor Alwood spoke of the trouble of lice on the trees. The green lice on apple trees come from eggs laid in the fall on the branches. These can be destroyed by spraying several times during the winter. The black lice and peach tree aphis stay at the roots until spring and then appear on the twigs. For these the remedy is to spray early before the buds are formed with a solution of one pound of soap to a gallon of water. Early treatment is absolutely essential to success. For borers, Mr. Murrell favored painting trees with white lead and linseed oil, and to remove the dirt away from the roots of the trees for some distance and paint the boles of the trees up to a foot or two above ground. The trees should be wormed twice a year. The worms can be found by removing the soil from around the trunks of the trees and watching for the sawdust bored out by the worms. Mr. Cockerill advocated leaving the roots exposed during winter, but Mr. Wickersham thought this would be fatal to the trees in a hard winter, and advised banking the earth up around the trunks. Mr. Murrell, speaking on hill side orchards, advised sowing clover or peas to prevent washing. Dr. Dodge asked as to the best exposure for fruit, and was told a north or west exposure was best for production, and south and west for color and quality. H. D. Peck inquired as to the best varieties of apples for the Valley section of Virginia. He thought the York Imperial (Johnson's Fine Winter) seemed best; others favored the Winesap. Mr. Hydenrich said Winesaps gave more trouble to shippers than any other variety. He preferred Johnson's Fine Winter. Mr. Kendy said he was not ready to condemn the Winesaps, and thought the trouble was more with the fruit growers than the fruit or climate. Mr. Buckley thought the trouble was in the way the fruit was treated after being gathered. It should not be kept heaped in large quantities, but spread out in an airy place.

The question was asked how to detect the San Jose scale from other scale insects with certainty. Prof. Alwood replied, by scraping off the bark. If the inner bark or cambium was purple, the disease was undoubtedly San Jose scale.

In the discussion on the report of the Chairman of the Transportation Committee, one gentleman stated that the reduction in charges obtained by the Society had saved him $40 on one crop of strawberries shipped to Cincinnati.

Professor Alwood strongly endorsed the use of cold storage for keeping fruit.

THE HOME GARDEN.

Editor Southern Planter:

No part of the farm acres pays a more sure or better dividend than the small part devoted to the home garden. The farmer living largely in the out-door air has less need for green vegetation in his diet, but nothing serves to round out a dinner and add relish to meats like fresh vegetables and green things from the garden. The garden is also the first lesson to all children in the great farm school. What is there intensively and exactly done is a preparatory lesson for work upon a larger scale.

The garden need not be large; a piece of ground 75

to 100 feet square is enough to begin with. This piece should be upon the east and south of trees or buildings, so as to get all the sunlight and be protected from the cold winds from the north and northwest.

As a beginning, and to be of ease in being cared for, it should all be laid off in rows instead of beds, and in such directions that a mule and light plow or narrow cultivator can be run from one end to the other without having to turn or tread upon the growing plants; lay off in rows rather than beds, because there will be times when the plants will need cultivating and no time to do it by hand.

Frequent cultivation once or twice in a row with plow or cultivator keeps the soil in condition, holds moisture, and enables the rows to be weeded by hand readily.

This garden plot should be a permanent thing. Select for convenience, and that it may be easily and thoroughly fertilized and deeply tilled and well harrowed. In a garden, the soil should be made very fine, and the manure be well rotted and well mixed in the soil.

The planting does not want to be done all at the same time. The most hardy plants, like peas, beets, radishes and lettuce may be planted very early. A good way to plant radishes is to scatter a few seed with the beets or cabbage or carrots and parsnips and pull them out as they grow.

Peas, beets and onions can hardly be planted too early after the ground is ready. A hot bed to start cabbages and tomatoes in is a convenience, while a couple of boards set up each side of a row of plants, or sticks stuck along in the row and some thin cloth, tobacco cloth or old bagging or guano sacks opened and laid on the sticks over the early plants at night and removed in the morning, will facilitate the growing of early crops.

When a few rows of plants are put out at one side, another few rows for succession may be added each week or two; also, dwarf and early varieties may be followed by medium and main crops.

All the preparations for the garden can be made at odd times, and when once exactly done and the benefits once seen, no home will be without the little garden, while additions and variations without number will be suggested to the women and children for special plants and flowers. My mother's little garden of plants, flowers and fruits was to me the Garden of Eden, and in fifty years of wandering I cannot forget it.

GARDENER.

Cold storage, if properly conducted, is practicable and profitable for the fruit grower.

Where fruit is grown for home use, or the local market, home cold storage is advisable.

EARLY CABBAGE.

Editor Southern Planter:

I suppose there are more people who eat cabbage, and eat them all the year round, than any other vegetable that grows. I am often asked the question, "What vegetable pays best? What would you advise us to plant for profit?" To these inquiries I have usually advised taking up some standard vegetable, like cabbage, or potatoes, the culture of which is simple, and the market for which is in most cases sure.

There may possibly be more profit in certain favored localities from the more delicate vegetables, such as celery, lettuce, or cauliflower; but their successful culture is more difficult, and the demand somewhat limited; but the great mass of people must have something to boil, especially in the spring and early summer, when the system craves vegetable food. And cabbage, potatoes, and turnips form the bulk of what they consume.

The early cabbage crop is a most important one, both North and South, and it is well to commence operations in advance of the time for setting the plants. We begin planting seed of Early Jersey, Wakefield, and Early Summer in cold frames by the middle of November, and follow this up with other plantings in hot beds in January. We also prepare some of our land in the fall. We have an acre of red clay upland which we plowed and subsoiled in November, and threw the land up in ridges so the frost could penetrate to make it fine. On this we are putting fifty tons of good stable manure broadcast, and shall supplement it somewhat with commercial fertilizers. We have another acre of bottom land which was in beans last fall, with crimson clover sown between the rows. The clover is now a fine carpet of green. This clover sod and the old bean vines will be turned under the last of February, and a ton of high-grade fertilizer used to the acre, which will analyze ammonia 4 per cent., phosphoric acid 6 per cent., and potash 7 per cent. To make this we shall use 50 lbs. nitrate of soda, 900 lbs. cotton seed meal, 800 lbs. acid phosphate, and 250 lbs. muriate of potash. Here we figure on the clover furnishing a portion of the nitrogen, and if the plants do not grow off to suit us, we shall use some nitrate of soda as a top dressing.

Cabbages are gross feeders, and it will not do to economize on the fertilizer with a crop like this. A crop of cabbages of 200 barrels to the acre, of 150 lbs. each, will remove from the soil 114 lbs. of nitrogen, 331 lbs. phosphoric acid, and 129 lbs. potash—more plant food than is removed by any other vegetable crop we grow; and to insure success with cabbage we must be sure the land is rich.

We shall work the land down fine after breaking,

apply the fertilizer broadcast, and harrow it in ; then lay off our rows two feet apart with a small scooter plow, and set the plants eighteen inches apart in the row. This will take about 12,000 plants to the acre. We prefer to set the plants in the furrow, as they are less likely to be troubled by cut worms than when set on the bed. They also live better, and will stand more drouth, as the root system is put deeper in the ground. The first working is given with the pronged hoe as soon as the plants are established, and this is followed with the fine tooth cultivator.

The cultivation of this crop must be rapid, at least once a week with hoe or cultivator, until the plants meet in the rows, and would be injured by the passage of the horse. Immediately after every rain, as soon as the land is dry enough, work over the patch to stop evaporation and keep the plants growing. The longer they are cultivated the longer they will grow and the bigger crop you will have.

F. J. MERRIAM.

HORSE-RADISH CULTURE IN BOHEMIA.

Horse-radish is employed much more extensively by German and Austrian than by American cooks, with the result that the cultivation of the plant has received in those countries more attention than with us. On the other hand, the fact that the markets there afford an adequate supply, of good quality, has doubtless tended to encourage consumption of this acceptable condiment and to increase the variety of culinary uses to which it is put, it being employed not alone in the raw state but as a prominent ingredient of boiled dressings for beef and mutton dishes.

The variety of horse-radish known in Germany and Austria as the "Maliner" or "Maliner Kren" is considered superior to any other. It is grown to perfection in Kuttenburg, a small village southwest of Kolin, in Bohemia, whence large quantities are exported. It is distinguished by unusually sharp penetrating taste, uniform shape, and excellent keeping qualities. The author is indebted to Mr. H. Schmidt, of the Agricultural College, in Leitmeritz, Bohemia, for kindly furnishing him with brief notes on the culture of this variety of horse radish, as practiced at Kuttenburg.

A deep, loose, strong soil with plenty of moisture is best suited to the culture of horse-radish. In the autumn the soil is forked over to a depth of two or two and a half feet and well-rotted barnyard manure is thoroughly worked in to the depth of a foot or more. A narrow bed, three feet wide, is prepared, and in late March or early April the horse radish cuttings are planted along both edges, alternating so that they are not opposite each other across the bed. The cuttings are twelve inches long and are set out eighteen inches apart. Instead of being placed vertically in the ground they are planted in an obliquely horizontal position, with the upper, larger end covered by only three-quarters to one inch of earth, while the lower end lies three or four inches deep. As a consequence of this slanting position, the new roots thrown out from the lower end of the cutting, striking vertically downward, make almost a right angle with the main stem, and it is these slender roots from which the new cuttings for the next season's planting are made.

During the summer the ground is kept free from weeds and the surface of the soil lightly stirred. Toward the end of June the bed is gone over carefully and each cutting uncovered separately and slightly raised out of the soil with the hand. Care is taken not to injure the perpendicular roots which have formed from its lower end. All small rootlets are rubbed off from the body of the root with a woolen cloth ; those that are too large to be removed in this manner being cut close with a sharp knife. A small quantity of powdered charcoal is scattered over the cut surfaces to prevent decay. The cutting is again covered with earth as before.

In order to keep the new roots of a uniform diameter, and to prevent their striking deep into the soil and becoming too slender, the beds are sometimes underlaid with a porous cement pavement, a foot and a half below the surface of the ground. This pavement checks the growth of the young roots and causes them to thicken.

The roots are allowed to continue growth until the end of September, at which time the harvest begins. The cuttings which have been two seasons in the ground, the first as vertical roots and the second in the oblique position, are by this time large enough for market. In digging the horse radish a long-bladed mattock or spade is used which enables the digger to remove not only the obliquely planted cutting, which is the marketable product, but also the new roots from its lower end, of which the cuttings for next year are to be made.

The roots are sent to market in neat bundles of several dozen. The uniformity in length and diameter is remarkable, the average thickness being about two and a half inches at the large end and one and a half inches at the other.

Restaurants keep their supplies of horse-radish quite fresh for several months by planting the roots in cool cellars in moist sand, and the cuttings held over for the spring planting are kept in the same way.

There is every reason to suppose that the Maliner Kren variety of horse-radish can be cultivated as successfully in America as in Bohemia, if the hand labor entailed by the removal of the small roots from the cuttings is not too great. But even should this additional expenditure or care prove unprofitable the selection to which this variety has been subjected will probably render it superior even under the methods now practiced by growers in America.

Whether the variety, when introduced, will retain its superior qualities can be determined only by experiment. A quantity of cuttings has, therefore, been imported for distribution to the State Experiment Stations, and to special growers who are already familiar with the culture of horse-radish and are willing to take the pains necessary for a careful experiment.

DAVID G. FAIRCHILD,
Agricultural Explorer.
Department of Agriculture, Washington, D. C.

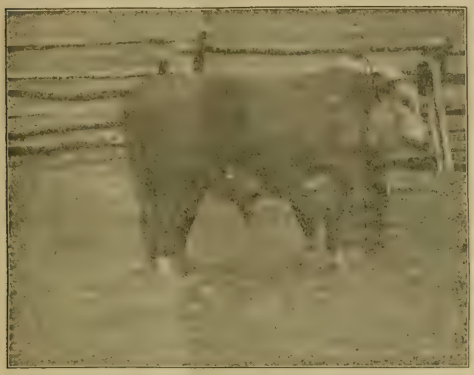
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Live Stock and Dairy.

HEREFORDS.

Editor Southern Planter:

I take pleasure in showing you and the many friends I have made through my advertisement in your good paper, the cut of my new herd bull, "Gold Standard," made from a photograph.



He is a combination of Anxiety III. 4466, and Imported Lord William 4057, with the blood of Earl of Shadeland XLI. thrown in.

Gold Standard, as a calf, yearling and two year old, has never been beaten, and his sire, *Pride of Evergreen*, is a prize-winner, and at the Kansas City Hereford show, his calves did well.

Weighing 1,900 pounds at Timonium Fair, 1899, shown as a two-year old, I don't propose to force him much. His calves show deep sides, good backs and excellent heads.

This photograph does not do him justice—that, I believe, is the usual saying—but to prove the case I shall take pleasure in showing him in his new home to any one who may favor me with a visit.

E. M. GILLET.

Bacon Hall Farm, Verona, Md.

THE HOLSTEIN-FRIESIANS.

Editor Southern Planter:

It is the opinion of those who are best informed in cattle history that the Holstein-Friesians are the oldest and purest breed of thoroughbred cattle in the world. All other breeds are of more recent origin, and have sometimes been formed by a mixture of this breed and the native stock of the country in which they were bred. The Holstein-Friesians are a primitive race, which, if we can rely on human testimony, has maintained the purity of its blood for two thousand years.

Instead of having sprung from other breeds, it is said to be the foundation stock from which many others have been built up. The Oldenbergs, Brietenbergs, Dittmarshes, Groningens, the Zelands, and the black and white cattle of Flanders, have all sprung from it. The Shorthorns also have a large infusion of this blood. The Holstein-Friesians are the genuine cattle aristocracy of Europe. Their genealogy extends back to the reign of Cæsar Augustus, before the Christian era; but instead of becoming weak and effeminate, like some of the royal families of the old world, they have, by great painstaking of their breeders, become more stalwart and robust.

Prof. Henderveld, in his history of the breed, says: "The genealogy of the Netherland cattle is pure and unadulterated, and is at least two thousand years old."

The inhabitants of Friesland were celebrated for the number and excellence of their cattle in ancient times.

Prof. Hengeveld, of Utrect, says: "The Friesians were the oldest inhabitants of Holland. Their history goes back as far as 300 years before Christ. Tacitus [the Roman historian] says of the Friesians that they owned cattle, not excelling in beauty, but in number, and that Julius Cæsar says that they paid each other in cows, sheep and goats.

A French historian, who wrote in 1350, states that Holland had for 500 years previously been famed for its dairy products.

Hale's Husbandry, published in 1758, treating of dairy cattle, says: "But the fine kinds are the Dutch and the Alderneys." The cattle now called Holstein Friesians were at that time, and until quite recently, called the Dutch, the Holland, or Netherland cattle.

Their native countries, where they are found in their purity, are in the two provinces of the Netherlands, North Holland and Friesland, and in the neighboring province or Duchy of Holstein, formerly belonging to the kingdom of Denmark, but now annexed to Prussia. The general adoption of the name Holstein-Friesian was the result of a compromise between the two rival associations of cattle breeders—the "Holstein" and "Dutch Friesian," both associations engaged in raising exactly the same breed. They were united in 1885, and the name Holstein-Friesian agreed upon.

When we read about distinguished men, or famous animals, we always have a curiosity to know some-

thing about the country that produced them. A description of North Holland will apply equally well to the provinces of Holstein and Friesland. The surface of the country is generally low, in many places marshy, and much of it lies below the level of the sea, from the encroachments of which it is protected by dunes and a line of sand-hills, and where this natural defense is wanting, strong dikes or embankments of earth have been constructed at great expense to keep out the water. Engineers have special charge of the dikes and pumping stations, the expense of which is reckoned at two and a half millions of dollars per annum.

Water-ways and canals are more numerous than in any other country in the world. The immense tracts of meadow land, and the polders reclaimed from the lakes, or sea, are traversed by large canals intersected in every direction by smaller ones for drainage and for commercial communication. The city of Venice has canals for streets, Holland has canals for common roads in the country.

The climate is variable, and subject to sudden changes of temperature—cold and chilly winds often following in quick succession after warm weather, requiring particular care as to clothing.

The Holstein-Friesians are a large breed of cattle, but not quite so large generally as the beef breeds. The cows weigh, when in moderate flesh, from 1100 to 1300 pounds. In color, they are usually black and white mixed, sometimes the one and sometimes the other predominating, but sometimes an animal of pure blood is produced that is red and white or pure white. Jacob proved long ago that the color of cattle could be affected by the painstaking of the herder.

Until recently, the Netherland breeders sought for superior dairy stock without regard to color, but since the American breeders adopted black and white as the standard, and will not admit any other colors to registration, the Netherland breeders have followed their example, and have thus made black and white the herd-book color on both sides of the Atlantic.

The cattle were brought to America by the Dutch who settled in New York about 1625, but soon became mixed with other breeds. The first importation that arrested the attention of the public was made by Winthrop W. Chenery, of Massachusetts, in 1852, and since then they have rapidly won their way to public favor, and are now regarded by competent judges as one of the best dairy breeds in the world. That the average Holstein-Friesian cows give a large quantity of milk, which will make a larger quantity of butter and cheese than the average cows of any other breed, is a fact established by such strong evidence that few well informed cattlemen are disposed to dispute it. Being larger and stronger machines, they have the ability to turn out larger amount of products. But larger machines of course require a larger amount of raw material to convert into manufactured goods. Larger engines supply more power than smaller ones, but consume more fuel and require more water to convert into steam.

The question that still remains to be decided is—Which breed of dairy cows supply the largest quantity of dairy products for the amount of food consumed? A trial made at an agricultural experiment station in Prussia resulted as follows: With the same care, in the same time, an Ayrshire cow produced 2,247 quarts of milk. The Holstein cow produced 5,677 quarts. The Ayrshire consumed nine pounds of hay to produce a quart of milk, and the Holstein cow but five pounds. The Ayrshire breeders in Scotland and America will not give full faith and credit to the fairness of this experiment.

The surprising results of many tests made with this breed might be cited here if space would admit. The cow Mercedes (723) won the champion cup offered by the *Breeders' Gazette* for the greatest butter yield for 30 consecutive days ending July 1st, 1883, open to all breeds, her well authenticated record being 99 pounds and 6½ ounces of unsalted butter.

Smith, Powell & Lamb's cow Aggie, 2d, gave 20,737 pounds of milk in one year. Another of their cows, of the same breed, won the highest award for the largest quantity of butter produced at the great dairy show in New York city, and won it against a strong competition from other breeds.

The Princess of Wayne, at five years old, made 91 pounds of butter in 30 days, and the same year gave 20,469 pounds of milk. Her average weight was about 1,475 pounds.

Empress (539), in her 13th year, gave 19,714 pounds of milk in 365 consecutive days.

As a breed, they have good digestive powers, and the young put on flesh rapidly.

J. W. Ingham.

WHY KEEP SCRUB CATTLE?

Editor Southern Planter:

The great demand for high grade cattle for fattening purposes and the high price obtained for first class beef, constitute one of the most hopeful outlooks for improvement and profit in many sections of the country, but particularly so in the South.

Why is it, then, that so few of our Virginia farmers persistently refuse to accept such an opportunity? Certainly, it cannot be from ignorance! Why do they continue to use scrub bulls, whose progeny are worth but little, if any more than their hides will sell for, whilst, on the other hand, almost every calf got

by a pure bred Shorthorn bull will readily bring from $12 to $20 when it is four months old?

Why do they persist in keeping a lot of "thorough bred scrub" cows—a majority of them not worth the food they consume for any purpose in God's world—when they could so easily and cheaply secure in their stead good grade Shorthorns? Do they not know that this latter class of animals make the best and most satisfactory and most profitable dual purpose cows in the world?

Is it not a fact that these grade Shorthorns are hardy and thrifty: that they give large quantities of milk of most excellent quality; that their calves, when sired by a pure bred male of the same strain, bring from three to five times as much as scrubs would do; and that when dry and fattened for beef, they take on flesh more rapidly, weigh heavier, and sell for a much better price too?

I take it for granted that every intelligent reader of your most excellent journal will admit the truth of the above statements, yet it is passing strange how few of them will act in the matter. Of a truth it may be said of many of them, that they "sin against light and knowledge."

What do you suppose, Mr. Editor, would be the value in dollars and cents to the stock interests of Virginia alone, if every "broomsedge scrub bull" could be replaced by a thoroughbred Shorthorn, and every diminutive scrub cow by one of good grade breeding? So far as the results, financially considered, are concerned, do you not think it would be the best investment of money our farmers ever made if this suggestion could be carried out?

I am not a breeder of cattle of any kind—don't even know a great deal about them—and don't care much about them one way or the other, but I do care a great deal about the condition of all our agricultural classes, and would willingly contribute all in my power to make them more thrifty and prosperous.

In conclusion, if this article has not already run on to too great a length, will you insert the enclosed clippings from a late number of the *Breeders' Gazette*, in order that our people may know what has been done along this line of improved stock. Perchance some of them may be persuaded to "go and do likewise," and find both pleasure and profit in the experiment.

JOHN T. HOWLETT.

Wythe Co., Va.

HIGH PRICED YOUNG CATTLE.

Our illustration page presents a picture of a bunch of "baby beeves" that created quite a little comment when marketed at the Chicago yards. This consignment, fed and shipped by W. R. Ratcliff, Fountain county, Ind., included twenty five head of cattle from eight to thirteen months old, and averaging 960 pounds. They commanded $6 35, and C. W. Foster, the Halstead street butcher who sold them over the block in his shop, declares that he "never saw the like of them, either alive or dead." They were so short legged and such "nuggets" that some of the stock yards people, long accustomed to the old time types, were disposed to consider them "freaks."

Mr. Ratcliff informs us that about half of the bunch were pure bred Shorthorns and the other half cross-bred Shorthorn Galloways. The dams of the cross-bred calves were got by a Galloway bull out of pure-bred Shorthorn cows, and they were bred to a Shorthorn bull, making the calves marketed three-quarter Shorthorn blood and one quarter Galloway.

GRADE SHORT-HORN HEIFERS BRING $6.10.

The heifers which I sold in Chicago for $6.10 were Shorthorn grades, averaging seventeen months of age. The sire was from the herd of R. E. Watts. They were fed new milk until they would eat oats and corn, the quantity being increased gradually as they grew older. Only three months before shipping they were put on full feed of corn, at the same time running on grass until marketed. I do not know the amount of corn fed, neither were they weighed. The heifers averaged 917 pounds in Chicago, and netted per head $53. W. S. KELLOGG.

Jackson Co., Ia., in Breeders' Gazette.

POLLED DURHAMS.

Editor Southern Planter:

I am constantly receiving inquiries as to what Polled Durham means, and as this is a question that all Shorthorn breeders ought to know, I concluded the best way to put it before the farmers of this section was to have the history of this great breed of cattle published in the *Planter*. There are two strains of Polled Durhams, one strain being produced from pure-bred horn-less Short-horns, and the other line being developed by using pure-bred Short horn bulls on native muley cows. Those coming from the pure-bred Short-horn families are called "double standard," because they are registered in both the American Short horn herd book and the Polled Durham herd book. The other branch is called "single standard," because the members of this family can only be registered in the Polled Durham herd book. Breeders of Polled Durham cattle claim a Polled Durham bull will get from 95 per cent. to 100 per cent. hornless calves from horned cows. Their prepotency in this direction is very remarkable. There is no breed that comes so near the standard set for general purpose cattle.

The Short horn is the best and most popular breed of cattle on earth, and the double standard Polled Durhams have all the good qualities of the noble Short-horns with their only objectionable feature gone.

Albemarle Co., Va. J. L. HUMBERT.

FEEDS AND FEEDING.

Better Combinations of Farm Crops and Methods of Feeding.

Editor Southern Planter:

There are millions of tons of corn stalks, representing 37 per cent. of the food value of our corn crop, which annually go to waste—worse than waste—for the nitrogen that is taken from the stored up supply in the soil to make one ton of corn fodder is worth more than $3. This bleaches or evaporates back into the air and is lost to the soil. The phosphates and potash are not lost, but much of them is washed away in spring rains, and a large part is lost. It is safe to say that every ton of corn stalks left in the field represents a real loss of $3.50. Think of this, fellow farmers; can you afford it?

Other millions of tons of oat, wheat, cow pea and soy bean straw—hay too coarse and weedy to sell—annually rot down upon sloping places where the black, muddy barnyard coffee carries other dollars' worth of plant food to waste. To this add the loss in the wasteful, unscientific way we feed fodder, straw, grain and hay, and we have just grounds to say that as farmers we do not get one half of what we might if we would master the subject of how to utilize all we raise and how to feed our farm crops so as to get results that are possible and that some farmers are realizing now.

Last fall I made an estimate of the tons of crops in one stack lot, that were useless as feed because animals could not eat it, and of that they could eat, though the latter was a poorly balanced ration and they would get but little good out of it. With the help of a table of the feeding values and pencil I found a waste of several hundred dollars on one farm. What would be the loss on all farms in the aggregate? The problem was how to reduce that mass of coarse food so that animals could eat it and get the nutritive value out of it.

We could shred the fodder, or cut it; trials with both have not been satisfactory. The first left it too coarse, and the animal had too much work to masticate it; the cutter left sharp ends that made the gums sore. We tried grinding the cut fodder, but that greatly increased the cost, so we gave that up. Neither machine could help us with thirty or forty tons of soy bean and cow pea straw. It was in the two latter that the protein element was so rich, and our tables told us if we could get it out it would save us buying mill feed, oil or cotton seed meal.

Moral philosophy teaches us that what we desire, and what will be good for us, comes to us. In this case it proved true. We found in a neighbor's barn a power cutting box, made by Heebner & Son, Lansdale, Pa., which had a crushing or grinding attachment just below the knives. We fixed the machine up and cut fodder, sheaf oats, soy bean and cow pea straw, Kaffir corn, and blended them in proper proportion to make a balanced ration, and, out of what our neighbors waste, are feeding what proves itself, at the milk pail, butter tub, with young stock, with fattening animals, horses preparing for sale, to be the best roughness we have ever used. Our ration this year is fixed for young stock, idle horses and dry cows; for milkers and fattening animals we add the necessary concentrated feeds. Next year we will grow more Kaffir corn and, with unthreshed soy beans and cow peas, will make an ideal dairy ration; and will not need to buy one pound of mill feed, oil or cotton-seed meal; will raise everything we need to make a ration for fattening animals; will simply cut and crush whole corn fodder (ears and stalk), increase the soy beans a little, and in this will have a feed rich in nitrogenous elements. No use again to go to mill or buy oil or cotton seed meal; we raise it all on the farm.

Like thousands of others, we are trying to master the chemistry of feeds in order to get the best physical results in our stock. We all know that a chain is no stronger than its weakest link; many of us have paid dearly to find out that a badly balanced ration is a costly leak. We are all learning that a feed rich in all food elements except one of the three—protein, carbohydrates or fat—is no richer than its poorest element. But the knowledge comes slowly; wisdom is hard to acquire. What the up-to date, wide awake feeder is striving for is to make two steers grow where but one grew before, and we will do it in the near future.

The skin, hair and droppings show exactly the physical condition of an animal. A visit to our stable would show glossy hair, soft, silken skin, firm, hard flesh, droppings in consistency and color very nearly like those from stock on good June pasture. Dead looking hair and harsh skin means that the blood is thick and sluggish, the kidneys over-worked, the sewerage of the body insufficient; a soft, mushy flesh means too much fat or tallow in proportion to the lean meat; black, hard droppings indicate internal fever, especially of the bowels. Such animals let most of the nutrition in the food pass through them undigested. Soft, mushy droppings carry off the food content charged with richness. The hard droppings show a want of nitrogenous, mucilaginous elements; the soft, excessive fat in feeds. Good feeders will know this; men who are making no money dairying or feeding must learn it. The milch cow that shows either extreme is giving a food very dangerous to young children—fatal to many babies. Beef from such stock is not fit for human food. The flesh cells are in part made up of broken down, dead tissue. It is no wonder butchers eat very little meat. Farmers, get ready to furnish healthy meat or the pure food law will get you.

Following are some of the advantages this kind of feeds and method of feeding will have over the silo: It is an admitted fact that the silo adds nothing to the feed; it must be filled when the crops are at certain stages of maturity, thus making it impossible to properly mix or blend the various crops; the number of animals must bear a ratio to the superficial area of the silo, or the silage will spoil. At the time this fodder, Kaffir corn, and probably sorghum, are in their prime, and at the season when the days are long and it is nice to handle it, sheaf oats, oat, wheat, soy bean and cow pea straw and poor hay will be at their dryest stage. When cut, the moisture not fully dried out of the fodders will be absorbed by the other crops and no excessive heating or moulding will result. The fine cutting and crushing will allow it to pack very solid, thus excluding the air and retaining the nutrition and aroma to show later in the milk and butter.

Our barn mows we shall make into dry silos. This "dry ensilage" will make pound for pound of butter and pound for pound of animal growth as compared with the costly silo. We have several bulletins that support this statement. A paper read before the Minnesota Agricultural Society, by Prof. T. L. Heacker, reports that thorough trials in the Minnesota Experiment Station prove this to be true.

We shall soon give a list of common farm crops and tables, showing the proper proportions for mixing these crops for the three stages of animal growth—young stock, growing stock and fattening animals.

In the future we shall only sell dairy, fowl and meat products, hay and wheat; feed everything else, thus keeping the fertilizing ingredients on the farm, and soon realize our ideal of growing two animals where we now grow only one.

Richland Co, Ill. ROBERT C. MORRIS.

JERSEYS AT BOWMONT FARMS, SALEM, VA.

Mr. A. M. Bowman, proprietor of Bowmont Farms, in a recent letter gives the following interesting facts:

Nothwithstanding the fact that we already owned two of the greatest and richest bred St. Lambert bulls living, viz.: Ethel's John Bull, 29,005, and Admiral St. Lambert, 51,338, we have recently added another by the purchase at the great Bradbury sale at Pomeroy, Ohio, of the pure St. Lambert bull, "Exile Rioter B," No. 56,725. This youngster is a grandson of the great "Exile of St. Lambert," who has 78 tested daughters—a record unequalled by that of any other bull living or dead. The dam of "Exile Rioter B." is "St. Lambert's Nora B," No. 124,869, with a butter record of 24 lbs., 5 ounces in 7 days, and is the produce of Judge Bradbury's great breeding bull, "St. Lambert's Boy" (sire of 27 tested daughters), and his own dam, the wonderful "Oakland's Nora, 14,880," with a weekly butter test of 23 lbs, 5 oz., and that made 422 lbs. of butter in her sixteenth year, and lived to produce a living calf when 19 years old. The paternal granddam of "Exile Rioter B." is "Letty Rioter, 73,475," with a butter record of 24 lbs., 2 oz. in 7 days, and a milk record in the same time of 318 pounds. The average butter record of his dam, two granddams, and four great-granddams being 23 lbs., 14 oz. in 7 days, giving him a butter inheritance that is rarely equalled, and not surpassed by any. He is withal an animal of exceedingly fine individuality.

We also purchased at the same sale six pure St. Lambert females, including the noted cows, "Rioter's Sweet Brier," "Exile's Mary," "St. Lambert's Mary," "Exile's Coquette," "Exile's Emsie," and "Lady Letty Lambert," four of them being in calf to the noted bull, "St. Lambert's Rioter King," 54,896, that was sold at the same sale for $700. Two of these cows have already dropped their calves.

We have also purchased from the veteran St. Lambert breeder, Mr. Wm. Rolph, of Markham, Ontario, Canada, two very valuable heifers—"Cassie, of Glen Rouge, 2d," and "Ida B., of St. Lambert." The latter is the daughter of "Pomona's Ida, of St. Lambert," who is the only living daughter of the "great Ida, of St. Lambert," whose official record of 30 lbs. 2½ ounces of butter in seven days, and 67½ lbs. of milk in one day, stamped her as one of the phenomenal performers of the wonderful St. Lambert family of Jerseys. An examination of the pedigree of our breeding bull, Admiral St. Lambert, will show that he also is a grandson of the "Great Ida."

With such a collection of high-bred animals, containing the richest lines of butter and milk inheritance, and tracing our own ancestry through a long line of practical Shenandoah Valley farmers and cattle growers, and with a personal experience in breeding and handling pure bred cattle, covering a period of thirty years, Bowmont Farms should be in position to produce the highest type of dairy animals.

TO PREVENT A COW SUCKING HERSELF.

Editor Southern Planter:

In reply to Mr. Burnham's inquiry, "how to prevent a cow from sucking herself," I have found the following to be a good plan: I take the half of a flour barrel head, and in the centre of the straight side cut a notch, which I enlarge, when cut in about an inch, so as to make it like a ring with a piece cut out of the side. The half head thus notched I place in the nose of the cow. The gristle of the nose will hold the board in place. When she attempts to suck, the board will fall down over the mouth; but it will not prevent her grazing. Round all the parts that go in the nose and grease well. Dimensions: Length, say 8 inches; width, say 3½ inches; opening at the nose, ½ inch or less.

Prince William Co., Va. WM. H. BROWN.

A DECISION AGAINST THE DOG.

Hon. John G. Dew, the efficient judge of King and Queen county, recently rendered a decision that may have a far reaching effect upon the vexatious question of dogs killing sheep and turkeys. Judge Dew sat in this case during the present term of Essex County Court at the request of Judge Croxton, as the latter had recently had about thirty sheep killed, and so felt a hesitancy in rendering a decision.

The case in question came up on appeal from Magistrate G. H. Dillard's court, in which W. J. Taylor had been awarded damages for the market value of twenty turkeys killed by a neighbor's dog. Judge Dew sustained the decision of the justice's court. In rendering his decision, the Judge scored the Legislature of Virginia, which, he said, had been derelict in their duty on this line toward the farmers of the Commonwealth.

Man is too near all kinds of beasts; a fawning dog, a roaring lion, a thieving fox, a robbing wolf, a dissembling crocodile, a treacherous decoy, and a rapacious vulture.—*Cowley.*

The Poultry Yard.

POULTRY POINTS.

Editor Southern Planter:

It is now time that all plans for the season have been made, and what we are going to do a fixed fact.

First of all, I hope the hen houses are all in good condition, comfortable yet well ventilated. The dirt floors should have all been raised with sand or some good new dry dirt so that no moisture can get in and thus give the chickens cold. Then, too, I hope the roost poles have been nailed securely so as to prevent the hens getting falls that often injure them if the roosts are high.

Nest boxes should have been thoroughly cleaned and whitewashed and filled with nice fresh grass as an inducement to "Biddy" as she hunts a place to deposit her first egg. When I say nest boxes, I mean those resting on a dirt floor with the foundation of the nest made in the dirt—then the straw or grass as the finishing touch. Nests of this kind I have found suit the taste of the hen, and are generally a safe place for eggs, as they seldom get broken upon such a foundation, while plank bottom nests often become bare and thus destructive. I would recommend such nests, also, as the most suitable ones for brooding hens, if a door is made for each nest, and care taken to take the hen off and watch her on again.

Vermin seem not to like nests of this kind so much, and it is little trouble to renew the grass several times during the three weeks, and each time use Persian insect powder, which will insure your chickens against lice and make the hen a happy and patient mother.

In the ten years of my poultry experience, I have found that absolute cleanliness is the greatest item in the whole business.

It is the greatest preventive of disease, and is far ahead of all other egg producers. "An ounce of prevention is worth a pound of cure," some one has said, and very truly.

Grit is another very necessary article. Each pen should have a good supply always at hand. I believe the lack of it is always the cause of indigestion, and not infrequently other diseases are traced to its scarcity. Broken china, crockery, etc., are relished and do no harm. Bits of slacked lime and crushed oyster shells should also form a part of the egg-producing supplies.

Since engaging in the purebred poultry business, I have become more and more interested, and am glad to see that our farmers are at last awake to the possibilities of the hen.

There is no doubt as to the profitableness of poultry raising, if conducted on right principles, by persons disposed to act honestly and squarely with those they deal with; but it is a lamentable fact that some dealers have done wrong, as those disposed to do the right thing have persons to deal with who are afraid to trust them with *a dollar* unless their money's worth is in sight. Why is it? let me ask.

We can never hope to gain a reputation for right dealing unless we do what we say we will; unless we send out what we advertise, and show men we mean to give them what they buy—returnable if not satisfactory.

The world is very *shamming*, it is true; but may we not start a revolution of justice, honesty and square dealing in the poultry world to-day, and once more establish confidence—a quality that is fast losing itself in the busy whirl of money-making?

Albemarle Co., Va. MRS. JOHN F. PAYNE.

DOTS AND DASHES.

Editor Southern Planter:

At the risk of "threshing over old straw," let me say to the beginner in poultry, *go slow*. Having been told that one hen will easily yield a clear profit of one dollar per annum, do not imagine that you can take one thousand hens and clear one thousand dollars. The *profits* are easy to work out on paper, where no allowance is made for the ravages of all the enemies of the poultry yard, and where it is taken for granted that you are an *expert* raiser of chicks. Begin in a small way, and when you have mastered the business, you can enlarge it as the demand for your stock increases.

Incubators and brooders have become a *necessity* with the up-to-date poultryman, whether he be a fancier or raising broilers for market. A word of caution to beginners in this line will not be amiss. The advertising matter sent out is exceedingly "catchy," and the inducements to buy very tempting. Do not be deceived by being told that the machine is "so simple that a child can run it," "it will not take five minutes a day," and similar *selling* talk. To run an incubator successfully, the operator must have a *working* knowledge of both the *natural* and the *artificial* laws of incubation. Our advice would be to select a *small* machine of some of the best makes, and study and experiment with it until you have mastered it, before buying too large a machine.

In working your first machine, let your motto be, "If at first I don't succeed, why! just fill 'em up again."

Said an experienced poulterer to me a few days

since: "I can't raise the chicks after hatching them." His experience is that of a great many. The difficulty is possibly two-fold—lack of proper brooding arrangements, else a lack of proper feeding. If the first is the trouble, it can easily be remedied by using a good brooder, keeping a proper temperature—which should not be less than 95° for the first few days—and seeing that the brooder is thoroughly cleansed and ventilated. We have used, for three years past, "home-made" brooders, and have had fine success with them, losing but few chicks, and having *no* trouble with leg weakness or diseased bowels. We are not afraid of *fresh air* and *clean* dirt, and after our chicks are two days old, they have the run of the house in which the brooder is placed, and the house door is thrown open and fresh air admitted freely. At a week old, they not only have the house, but access to the run in front of it on all bright days. Our object is to bring the chick into contact with the outer air, and the ground as speedily as may be, in order that it may, in as far as possible, enjoy that which is natural to it. We are going to try a "boughten" brooder at an early date, and will then be in a position to know the relative merits of our own make and that made by machinery.

Should any of your readers desire information in regard to what we now use, I will take pleasure in giving it, provided a stamp is enclosed for reply.

Almost every one has a method for feeding. We give ours for what it may be worth. We always feed *cooked* food—stale bread, johnny cake, and the like—*never*, under any circumstances, giving the youngsters raw dough. As soon as they can eat it, we keep pinhead oat-meal, millet seed, granulated oyster-shells, and a liberal supply of charcoal, constantly before them. For drink, they have scalded milk and clear tepid water. We believe in milk and charcoal, and find that, under our system, our chicks are ready for market at from eight to ten weeks of age, plump and nice, and weighing from a pound to a pound and a quarter, which is the weight desired in broilers.

Negro Arm, Va. J. H. SLEDD.

INDIAN RUNNER DUCKS.

Editor Southern Planter:

Previous to 1895 wonderful stories reached this side the Atlantic about a duck that laid the year round, grew rapidly, and when dressed for market had a most attractive appearance. These ducks got their name from their original home India. They get the name "runner," as they are runners. Their strong legs, set well back, with their erect carriage, makes it possible for them to move rapidly, there being no awkward waddling about their movements. There are two distinct strains, one black and white, and the other fawn and white. The black and white, while possessing many of the good qualities of the breed, are not as distinct in shape and markings as the fawn and white. The black pin feathers seriously detract from their market value, hence we should confine ourselves to the fawn and white. The English breeders claim 225 eggs per duck per year.

One hundred and ninety-two eggs per duck per year was the average, however, for the past two years of one flock, which is certainly a most phenomenal record, being not only the record of one or two picked birds, but that of a large flock.

By careful experiments it has been proven that they mature very rapidly, but it does not seem possible to grow them in crowded quarters, as is so often attempted with Pekins.

The Indian Runners when grown are easy keepers. They seem to care little for a large body of water, but when kept for eggs alone, find no small part of their food foraging over their range. The young ducks are easily raised, and take but little care after they are taken from the nest.

I did not loose a single one last year, except two that were killed by a puppy.

Albemarle Co., Va. J. L. HUMBERT.

Chicks that run with the hen in the spring have exercise, and they do not eat too much at once, as happens when confined in winter. It is better to feed millet-seed scattered in litter, and compel them to scratch and gradually secure their food, than to fill them at once. It is lack of exercise that causes leg weakness and other difficulties. Turning out the chicks from a warm brooder to a cold room in winter is like taking them from the hens and exposing them in a cold room without protection or the warmth of the feathers of their dams. If each reader would keep in view the fact that young chicks are very tender, there would be more success with them.—*Poultry Keeper.*

In our article last month on the value of poultry droppings, we omitted to state how to preserve them. Well, never mind dry dirt, plaster, and all those useless things, except when such are used on the poultry house floor. Simply use enough dirt to enable you to sweep the floor, place the sweepings in a barrel, and keep the contents of the barrel moist (not wet) with soapsuds. When you empty the barrel, you will not be able to get within several feet of it for the ammonia. The fat acids of the soap render the droppings soluble. If kept dry, the droppings become as hard as iron.—*Poultry Keeper.*

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter.*

The Horse.

NOTES.

The trotting bred horses at Belgravia Farm, Mount Jackson, Va., have wintered finely, and Mr. James Cox, owner of this breeding establishment, which is about the best known of its kind in the far-famed Valley of Virginia, has expended money with a liberal hand in purchasing the stallions and brood mares there. Kelly, the son of Electioneer, and the great brood mare Esther, thoroughbred daughter of Express, heads the stud, while Belview, a blood like, handsome son of Belmont and Lady Simmons, by Volunteer, poses as second stallion at the farm Kelly was purchased during the boom days of the trotter, and big money was paid for the son of Electioneer, whose trotting record of 2:27 does not represent his speed limit by a long margin, as in his work he has shown terrific bursts of speed. The brood mare band at Belgravia includes Ruby McGregor, by Robert McGregor, out of Buena, sister to Verba S., dam of the sensational performer, Kingmond, 2:09¼; Minnie Montros, by Robert McGregor, out of Minnie King, dam of E T. H., 2:16¼, by Mambrino King; Erena, 2:19¾, by Alcyone, dam Estelle, by Clark Chief, and Alcyrene, 2:27¾ by Alcyone, dam Bessie Oliver, by Kearsarge. The daughters of Alcyone were purchased and brought to the farm last fall along with the fast mare Frances 2:27¾. Erena is the dam of three in the list, and is again in foal, but Alcyrene, who was not bred in 1899, may be placed in training again and given a lower record. Frances will be driven to pole with a big brown mare, by Axtelloid, dam a sister to Charlie C., 2:13½, by Sam Purdy, bred and owned by Mr. Cox, who looks for the pair to make a fast team. A grand looking young mare is Morelle, 6, by Belview, out of Aconite, by Tremont, who is gaited to perfection and should trot to a low record, while Aconite's three-year-old daughter Napelline, by Kelly, is just about as good as Morelle. Prospects are much brighter for breeders, and Mr. Cox looks for good results during 1900 at Belgravia.

Under the management of Mr. F. Covington, affairs are progressing smoothly at Foxhall Farm, Norfolk, Va., where Great Stakes, 2:20, the good-looking son of Bill Thornhill, and Sweetstakes, by Sweepstakes, is the principal stallion, and his stud compainion is Foxhall McGregor, the grand-looking young four year old son of Robert McGregor, 2:17½, and Cleo, 2:19½, by Gambetta. Right out of the stud Great Stakes trotted to his record, and he has sired a consistent and speedy race horse in Little Stakes, 2:24½, while others of his get are very highly regarded. Foxhall McGregor will be bred to some of the best mares on the farm, so well is he thought of by Mr. Covington, who looks for the young son of Robert McGregor to develop speed and race horse quality of the highest order. The brood mare band at Foxhall includes Jessie Stamboul, dam of Clesimtay, 2:17½, by Stamboul, second dam Astrione, by Alcyone, third dam famous old Jessie Pepper, dam of Iona, 2:17½, etc.; Frances, 2:25½, registered as S. E. S. Frances, by Muscivite, out of Venus, dam of Monoeye, 2:30, by Conger; Mimi by Eagle Bird, dam Cleta Wilkes, by Wilkes Boy; Sweetstakes, by Sweetstakes, dam Gin, by Rockafeller's Clay; Stambouletta, by Stambold, dam Sweetstakes, and Sunbeam, by Hambletonian Mambrino, dam by Ben Bolt.

Mr. Thomas Atkinson, of this city, owns a well made, handsome mare, Limit, the bay daughter of Vacher and Verney, dam of Wanseon, 2:19½. Two others in the list, by Haw Patch, the sire of Magnolia, 2:09½. Limit is kept at Rocklands Farm, the beautiful country home of Mr. Atkinson, near Gordonsville, where three of her produce, all by the hackney stallion Danesfort, are owned. They are a bay filly, 3; a bay colt, 2, and the chestnut filly, 1, who is described as the handsomest and most blood like of the trio.

Mr. T. M. Arrasmith, formerly a well known North Carolina horseman, first at Hillsboro, then at Greensboro, is now located at Mount Pleasant, Tennessee, where he is farming on an extensive scale. Mr. Arrasmith is doing contract work for the International Phosphate Company, in addition to farming, while he is also handling some good prospects in the way of trotters and pacers. Mount Pleasant is but a short distance from Columbia, and right in the heart of the famous pacing horse section of Tennessee, and since his sojourn there some of high class, sons and daughters of Brown Hal and other great sires of pacing speed, have passed through Mr. Arrasmith's hands, who is a Kentuckian by birth and one of the best informed students of pedigrees that I recall.

By her recent purchase from the Amaret Farm, Fredericksburg, Va., of the chestnut gelding Cupid, five years old, by Bohemian, dam by Brennan, Miss Lucille Murchison, of Wilmington, N. C., secured a light weight hunter and park saddle horse of a very high type, one of exquisite quality and finish, whose head would serve for a Titian model. Cupid's sire, Bohemia, a grand looking, rangy son of Ten Broeck and Olitippa, by imported Leamington, was formerly owned jointly by the eminent jurist, Judge Robert W. Hughes, of Norfolk, and that courtly gentleman, the late A. L. Boulware, prominently known in banking, financial, legal, and the highest social circles of this city.

The thoroughbred yearlings, the property of R. J. Hancock & Son, Ellerslie Stud, Charlottesville, Va., will be sold by the American Horse Exchange, New York, on the first Monday of the Sheepshead Bay meeting. These youngsters are a grand looking lot, sired by the Ellerslie stallions, imported Charaxus and Eon, the son of Eolus and War Song, while their dams are to be found among the famous band of brood-mares that make up the Ellerslie Stud.

Subscribe to the *Southern Planter* and get your friends and neighbors to do the same. The oldest journal of its class in the country. It is widely known and popular, while as an advertising medium it is great on account of its wide circulation. The subscription price is simply nominal—only fifty cents a year, which places it within reach of all. BROAD ROCK.

Miscellaneous.

FERTILIZER ANALYSES.

Editor Southern Planter:

The average farmer seems to regard anything expressed in chemical terms as quite beyond his understanding. As a matter of fact, chemical terms are very simple, at least so far as fertilizer analyses are concerned. The analysis shows that the fertilizer contains certain percentages of plant food, and per cent. means just the same in this case as the per cent. of interest on a note, or of fat in cream; that is, out of one hundred parts of the whole there are so many parts (the rate per cent.) of the substances specified.

The trouble is not that the farmer does not know what per cent. means, but he commonly has very hazy notions as to what the fertilizer is, and it is a bit difficult to comprehend a certain percentage of something unknown. In the first place, we must consider that all manures or fertilizers are just simply plant food; that is, they contain substances which favor the growth of plants. Now, scientific men have determined just what these substances are, and as there are no popular or common names for most chemical substances, these materials are called by their chemical names—nitrogen, potash, and phosphoric acid. These are three separate and distinct substances, and it is now known that plants must have all three of them, and also in certain definite proportions.

When a fertilizer analysis says the fertilizer contains, say 2 per cent. nitrogen (or 2½ per cent. ammonia, which is the same in effect), 8 per cent. available phosphoric acid, and 5 per cent. potash, it means simply that in one ton of 2,000 lbs. of the fertilizer there are just so many pounds of the three food requirements of plants—40 lbs. of nitrogen, 160 lbs. of phosphoric acid, and 100 lbs. of potash. It is all very simple but also very important to thoroughly understand.

A farmer must never forget that ammonia or nitrogen without potash and phosphoric acid is useless to plants; or phosphoric acid without nitrogen or pot ash; or, in fact, any two of them alone. All three are necessary. No one or two of them can accomplish useful work alone. From this fact the fertilizer analysis becomes very important, as it shows if a fertilizer is "complete"; that is, contains all three of the plant food ingredients.

Tables of fertilizer analyses must be studied carefully. It is possible that a fertilizer may be offered which contains all three of the forms of plant food but which contains very little of some one of them. This may come from purely accidental causes, or may be due to a desire on the part of the maker to mislead the careless purchaser, who, looking only at the table and noting that all three are present, fails to observe that one of them is present in very small quantities; in fact, just enough present to justify including it in the table.

This is often the case in regard to ammonia, which, being the most expensive form of plant food, may be slighted in order to make up a cheap mixture. In this part of the country potash is also slighted, though usually unintentionally. The fertilizer materials of the West are largely drawn from packing-houses, and are comparatively rich in ammonia and phosphoric acid, but very low in potash; hence it is necessary to keep a sharp lookout as to the percentage figures, to see that all three plant food elements are present.

I mentioned above that these plant food ingredients are required by crops in certain definite proportions. We do not know exactly what these proportions are for general crops; that is, what would be the best mixture for *all* crops. It is a safe plan to use particular formulas for special crops; and the analysis of the crop shows about what plant food it needs. Note particularly, however, that the analysis of the *whole* crop must be taken, as we cannot grow, for example, a crop of seed wheat alone, the straw and chaff must also be grown. For all cereal crops, the quantity of phosphoric acid and potash should be about the same, perhaps the former a little higher than the latter, and the ammonia should be from one third to one quarter the quantity of potash. Of course, if the crop is grown after a clover or other leguminous sod turned down, very little, if any, ammonia is required.

Moore Co., N. C. BRYAN TYSON.

POTASH SALTS—CAN WE NOT FIND THEM IN THIS COUNTRY?

Editor Southern Planter:

Some years ago, when the writer was investigating the nutrition of the soil, plant, beast and man, he was asked what would be the next great discovery most important to the welfare of mankind, to which he replied, "A source of nitrogen at low cost." That problem is in process of solution by way of saving the vapors from coke ovens, iron furnaces, etc., and through the action of bacteria upon leguminous plants. An adequate supply of phosphates is assured for all time from Tennessee, North Carolina and Florida; the one element of soil nutrition which is in some measure deficient and expensive is potash.

We are very large importers of potash from Stassfurt, Saxony. If I am rightly informed, the mine from which this supply comes had been worked as a salt mine. The salt on the first level giving out, borings were undertaken to find a lower stratum, which passed through

an intermediate stratum, striking salt. The borings of the intermediate stratum were thrown aside, which happening to attract the attention of an outside chemist, proved to be potash in different combinations. This mine has proved such an adequate source of supply at low cost with enormous profit to the owners as to have practically stopped supplies from many other sources.

As this deposit of potash exists in combination with salt, may it not be judicious to investigate the conditions of our own salt and alkali deposits with the specific purpose and intention of discovering a potash mine? To this end the suggestion will be made to the consular representatives of the United States in Germany to report upon the Stassfurt product and upon the geologic conditions and surroundings of that mine, accompanying such report by samples of what I suppose may be called the different ores. The suggestion will also be made to the Philadelphia Museum to make a thorough investigation of the sources of potash, especially the Stassfurt mine, in the thorough manner which marks all the work of that institution.

The suggestion is now made to certain persons to whom this missive will be sent to take this matter up and perhaps enter upon a "grub stake" with "a prospecter" in order to find a potash mine. Such a discovery will add much more to the wealth and welfare of this country than any discovery in gold or silver mining could possibly add.

All of which is respectfully submitted for whatever it may be worth with the caveat on the part of the writer that he is entitled to make this suggestion by what he doesn't know but wants to know. Therefore, if there are scientific reports relating to the subject of potash in our Geologic Survey, or if there has been any undertaking with the specific view of discovering a potash mine, information on these points would be very welcome. EDWARD ATKINSON.

THE EDUCATION OF THE FARMER.

The following address was delivered by President Samuel B. Woods to the State Horticultural Society at the annual meeting in Staunton:

In calling you to order to-day, gentlemen of the Virginia State Horticultural Society, I congratulate you that the organization has lived five years; that though its growth has been slow, it has become stronger each year, and is to day more largely occupying its field of usefulness than ever before. We should bear in mind that it is not in numbers alone that its growth is to be calculated, but also in the increased intelligence, zeal and usefulness of its members. Our mission is to awaken our people to an appreciation of our great opportunities in horticulture; to acquire and impart scientific knowledge and information; to take an active part in the uplifting of the agricultural class of the State, and especially the advancement of the education of the farmer.

We have reached a crisis in the history of agriculture in Virginia. The time has come when the farmer must be a better educated man or he will succumb, for otherwise he cannot compete with the highly educated class of agriculturists which the enlightened policy of other States is producing. The education of the farmer—it is a big task. By education, I do not mean that he should necessarily study the classics and higher mathematics. I do not wish to be understood as undervaluing these; they are most desirable in their places; but if the prospective farmer has not time and money to take these and a line of studies which bear directly on his calling, he had better devote all his time to such branches as agricultural chemistry, botany and zoology. Statistics show that the average graduates of classic colleges are to-day earning less money than the brakemen on our railroads. This, I believe, is not because a college is a bad thing, but because it is poorly adapted, in the branches selected, to the future calling of the student. To illustrate my meaning: A few years ago Colonel Mosby was walking on the streets of a Virginia town with a friend, when they saw a man trying to sell a small load of wood. The man, who was badly dressed, was perched on his load driving a sorry team, and it was evident that he was being badly worsted in the battle of life. Colonel Mosby stopped him, and going into the street, took him by the hand with the remark, "You don't know me?" "No," said the man in a hopeless sort of way. "Don't you remember Mosby?" "Why, Colonel Mosby," the man began.—"Don't call me colonel, call me Jack," the Colonel answered, and turning to his companion, said. "I've read many a page of Tacitus with him when we were students together."

Now, if the course of instruction which that man had followed had been more closely allied to his calling—if he had, in other words, taken an agricultural education—he would most probably not have been the dead failure he turned out. The point I would emphasize is that farmers should take special studies in agriculture, just as doctors do in medicine and lawyers do in law.

Secretary Wilson recently told me that he had been trying to find men who could properly analyze soils, and though large salaries were attached to the positions, they were unfilled because the men were not to be had. He also stated that a few years since they had found it impossible to get a good man for the dairy department of the State of Iowa. They wanted a man who understood the scientific methods of making butter and could make it; they found men who understood the scientific methods but couldn't make butter, and they found men who could make butter but didn't understand the science of the operation. They couldn't find the man who knew how and who could do it too.

The young men who are going to farm should attend the agricultural courses of our colleges and universities. The farmers whose day for college courses has gone should be encouraged to follow these studies at home. They do not necessarily require attendance at an institution of learning, but if the farmers now at work could have the advantage of farmers' institutes, of such meetings as this one to-day, and of a strong and vigorous agricultural department in the State; if they can be encouraged to use these aids and buy and study a few good farm books, and patronize more liberally the agricultural press, there are bright days before them and before Virginia as an agricultural State.

"THE YOUNG BACHELOR."

The Young Bachelor is a work of fiction, written by Captain Camm Patteson, which will shortly be published. It is written to portray the stirring times of reconstruction.

It was written before "Red Rock," by Mr. Thomas Nelson Page, and with practically the same object. The phenomenal success of that beautiful and splendid production, "Red Rock," has tempted the author of The Young Bachelor to rewrite it. We reproduce his dedication.

To Thomas Nelson Page himself, a distinguished son of Virginia, and the author of that charming and immortal production, "Mars Chan," which touches the tenderest and deepest chords of the human heart, The Young Bachelor is respectfully dedicated. CAMM PATTESON.

One of the first chapters of "The Young Bachelor" contains a description of an average Virginia farm prior to the War between the States of this Union, which the author has kindly consented for us to publish. In doing so, we must not be taken as subscribing to all of his opinions. At the same time, it affords us pleasure to publish the chapter.

The author of "The Young Bachelor" is well and widely known for his literary ability, and is amply able to champion his own opinions.

That he was an actor in the scenes which he describes gives an added interest to his work.—*Editor of The Southern Planter.*

Virginia, in 1860, seems to have reached the zenith of her prosperity. Her domain extended from the banks of the Ohio to the Atlantic ocean. From one end of the State to the other her people were contented and happy. In literature, in law, in medicine, in science, her sons stood in the front rank; in beauty and accomplishments, her fair women were far and away the best in the land. Even her negroes were happy and contented. The fierce political contests between the two great parties, Whigs and Democrats, while spirited, were not acrimonious, and were not tainted with the least shade of bitterness, and the chains of African slavery were so light as hardly to be esteemed a burden. A well-regulated Virginia farm of that day and time is well worthy of description.

An average farm of the wealthier classes had about a thousand acres of land, with generally from fifty to sixty slaves. There were a few farms that had over a thousand slaves, but these were the exceptions; many had only ten or twelve. The average farm had always an overseer, who generally lived in a neat house to himself. He was, in many instances, a man of great industry and intelligence. He was well paid, and invested with great power, which he rarely misused, and was almost always true to his trust. He was, in part, the outcome of slavery, and so good a citizen did he make that many of his descendants are to-day the leading people of Virginia. Each negro who was the head of a family had a house of his own, with generally an acre of land attached, the products of which he owned. It was the custom of the owners to give the slaves a number of holidays, often three days in every month. His family was always comfortably clothed, and they had, when ill, the attendance of the very best physicians. There were almost always three men trained as teamsters, with three plows worked by mules, and it was the duty of these three teamsters to plow every day in the year when the season allowed, and this plowing was always done with care and judgment.

There was generally an ox driver whose duty it was to do the heaviest hauling, especially the manure, in the winter and spring, and he also aided in delivering the crops. His team generally consisted of three yoke of oxen, and it is difficult to estimate the amount that they could haul with ease. It was the custom to have a trained blacksmith and carpenter, and they were often skilled workmen. The carriage driver generally acted as the butler, and was almost always a man of prominence in his race. Among the negro women, the seamstress and house servants were selected from the very pick and flower of the race, and were generally taught by their mistress, and they made house-servants the like of which will never perhaps be seen again. There was always a good shoemaker, who made the shoes for both white and black. The white boys had stitch down shoes for daily wear and welted shoes for Sunday, and it is said that for good wear and solid comfort they have never been surpassed. The clothes of both white and black in the summer were made from flax, which was woven at home. The hemp lot was a part of every farm, and the flax Heckle and the loom could be found on every well-regulated farm. In winter, the clothes of both races were made from wool taken from the sheep raised on the farm, and the shoes were made from hides often tanned upon the farm. And such clothes they were. For warmth, wear and comfort they have never been surpassed. The average white boy was clothed, with the exception of his hat (and in many instances he had a cap made at home) entirely from the farm. It was upon a farm like this that I have attempted to describe that I first learned the inestimable advantages of home manufacture. Time has only welded and cemented in my mind the principle that the protection of American industries is true sound doctrine. The chief money crop was tobacco, and it was grown and managed with a skill that made it famous in the markets of the entire world.

Its cultivation was very profitable, and it was managed with consummate skill from the plant bed to the warehouse. But it must not be supposed that other crops were not made. On the contrary, yields of wheat, corn, oats and hay were made, which proved that farming operations were often conducted with the highest skill. The files of the *Southern Planter* will show that under the slavery *regime* Virginia was among the foremost States from 1840 to 1860 in the American Union. In a great majority of instances there was the kindest feeling between the owner and his family and his slaves. Indeed, generally speaking, it was a patriarchal family. As I have before stated, the pick and flower of the negro families were placed at the dwelling-house, and they constituted the negro aristocracy. They were treated with loving kindness and affection, and generally deserved it. The old "Mammy" was an institution by herself, and was beloved by the white children almost as much as their own mother. The butler and the dining room servants carried themselves with an air of hauteur which was both amusing and becoming. It was an exquisite amusement for the white boys to sneak off on Sunday evenings and holidays with the young negro boys often fishing, sometimes hunting or playing marbles or some other sport. The spice of danger with which it was attended added to the zest and made it all the more alluring, for the laws of the Medes and Persians were not more certain than a sound thrashing of both races if any fishing or hunting was done on Sunday. These associations between the two races made many

lasting friendships which stood us in good stead during the war between the States of this Union.

As a rule, the owners were not cruel to their slaves. No where on earth did a negro trader excite greater abhorrence than in Virginia. The cruel scenes so graphically described by the distinguished author of Huckleberry Finn and Mrs. Harriet Beecher Stowe never took place in Virginia. Of course there were cruel masters, but they were exceptions to the rule. I am free to admit that these exceptions, few as they were, made slavery wrong on principle. That the Virginia negro with a kind master had, generally speaking, a happy and contented existence cannot be denied. It is the truth of history. The negro is by nature possessed of a singularly gentle and lethargic disposition. He soon forgets an insult which would rankle for years in the heart of an Anglo Saxon. During his holidays he enjoyed himself to the utmost. The wheat harvest was to him one round of pleasure. He knew that the finest whiskey was his as free as he wished during that time, together with the food that he liked. Between the cradlers there was always a generous rivalry; indeed, it was often difficult to prevent them from overexertion, and the victor was always rewarded. The harvest was really to him an athletic game to which he looked forward with pleasure. At corn shucking time there came another happy event in his history. It was the custom of planters to get together several hundred barrels of corn and give notice that they desired the neighbors to help them shuck it at night after dark. They always came by dozens, and until midnight the delightful melody of their songs could be heard in the far distance. Some of these old ballads ring in my ears to this day, and I have often sat for hours and watched this pleasant task.

The Virginian was not by habit thriftless as has been so often stated. On the contrary, in many instances he was a man of great business talent.

The institution of slavery gave rise to a system of of credit which engendered habits of extravagance, and on this account many estates were largely in debt. He rarely ever settled with his commission merchant, and drew on him as he wished. While this is true of a large number, it is also true that a larger number were business men of the highest character, and their promptness and integrity were noted the world over. The Virginian, when he could, always educated his children at the best schools of the land—the University of Virginia being his favorite, with Yale and Harvard as his second choice. He fostered with pride that was extraordinary a love and reverence for his ancestors. From the very bottom of his heart he prided himself upon the fact that he was descended from cavalier stock. It was always to him a source of congratulation that Virginia had never yielded to Oliver Cromwell, whom in his heart he detested. Because Virginia did not so yield, she is known to this day as the Old Dominion, and it is a title which will long be cherished. He always regretted the unkind seas which prevented Charles the Second from reaching Virginia when he had set sail for that purpose, and when that monarch was crowned one of his gowns was manufactured and made for him in the county of Gloucester, which the King accepted with many expressions of thanks. His coat of arms and armorial bearings were all preserved with the greatest care. This unconsciously engendered in him a vanity and egotism which generally was so absolute as to be amusing. He had no idea that anybody on earth could be as good as Virginians. Any statement made to the contrary was accepted with incredulity, and with a sentiment akin to compassion. In his social duties, he was the very essence of hospitality. A lover of horses, he would walk three miles to catch a horse to ride two miles to church. He was never happier than when surrounded by his friends. When a visitor came, the first act always of the butler, after inviting him in the parlor, was to bring a decanter of the best whisky and some old-fashioned cut-loaf white sugar. This was an inviolable rule, and excited no comment whatever.

The old County Court day was one of the great institutions. It was always a day of traffic and trade; a day of law and politics. And by the way, the old County Court was composed of the very highest gentlemen of the land. Its sentences and judgments were hardly ever reversed, and the affairs of each county were managed with consummate skill and the greatest economy. From 1840 to 1860, Virginia is said to have been the most orderly and peaceful community, perhaps, in the world. Surely a civilization which accomplished such great purposes must have had much in it that was good. It may have had, and doubtless did have, its faults, but it was a great era the like of which we may never see again. This same civilization gave to mankind some of the foremost men of the world. Neither in war nor in peace will Virginia shrink from a comparison with any English-speaking people.

NOTICE TO FARMERS.

The Administration Building of the State Agricultural and Mechanical College and Polytechnic Institute at Blacksburg, containing the offices of the President, Commandant, Treasurer, Secretary of the Faculty and Surgeon, and the Library, mailing room and office of the Secretary of the State Agricultural Experiment Station, was totally destroyed by fire on the night of February 1st. All the records, books, papers, etc., of the several offices were burned. The Station lost all of its books, bulletins and mailing list containing the names of twelve thousand Virginia farmers. Notwithstanding this serious interruption to its work, the Station will have ready for free distribution within the next few months eight important bulletins.

As it is anxious to renew its mailing list, all farmers desirous of securing these bulletins and its subsequent publications are invited to send in their names at once to the Director of the Station at Blacksburg, in order that they may be included in the new mailing list now in course of preparation there.

THE FENCE LAW CASE.

The decision of the Court of Appeals in this case was delivered a few days ago, and sustains the constitutionality of a fence law much to our surprise. We had hoped to publish the opinion of the court in this issue with a review by Judge Leake, but have not been able to get a copy in time. It will appear in our next issue.

THE
Southern Planter
PUBLISHED BY
THE SOUTHERN PLANTER PUBLISHING COMP'Y,
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J. F. JACKSON,
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B. MORGAN SHEPHERD,
BUSINESS MANAGER.

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We Invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles. Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

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The Big 4

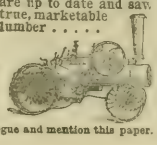
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PUBLISHERS' NOTES.

Our Advertisers.

We feel that we owe a debt of gratitude to our advertisers for the very liberal manner in which they are patronizing our columns this year, and by way of endeavoring to shew this gratitude, we desire to invite every reader of the *Planter* to carefully examine all the advertisements every month. He will not find amongst them one which will cause the blush to mantle on the most refined cheek, or one which we cannot fully endorse as to reliability of the advertiser. Whilst the reader may not at the moment want any of the goods offered, yet the knowledge of where they can be had will be useful in the future. Never before in the history of the *Planter* has it carried such a line of advertising and given to farmers such a choice of markets to buy in; and for the comfort of the advertisers, we can say that never before in its long life has the *Planter* gone to so many of the farmers of the South as it now goes to every month, and these farmers were never before in better shape to patronize advertisers.

WOOD'S HIGH GRADE
Farm Seeds.

Our business in Farm Seeds is to-day one of the largest in this Country. A result due to the fact that quality has always been our first consideration. We supply **all Seeds required for the Farm.**

GRASS & CLOVER SEEDS, Cow Peas, Cotton Seed, Seed Oats, Seed Corn, Soja, Navy & Velvet Beans, Sorghums, Broom Corn, Kaffir Corn, Peanuts, Millet Seed, Rape, etc.

Wood's Descriptive Catalogue gives the fullest information about these and all other Seeds; best methods of culture, soil best adapted for different crops and practical hints as to what are likely to prove most profitable to grow. Catalogue mailed free upon request.

T. W. WOOD & SONS,
SEEDSMEN, - Richmond, Va.

MAINE SEED POTATOES
Grown by us. Guaranteed PURE. Address HENRY ELWELL & CO., 310 Washington St., New York. Mention this paper.

CATARRH CANNOT BE CURED with LOCAL APPLICATIONS, as they cannot reach the seat of the disease. Catarrh is a blood or constitutional disease, and in order to cure it you must take internal remedies. Hall's Catarrh Cure is taken internally, and acts directly on the blood and mucous surfaces. Hall's Catarrh Cure is not a quack medicine. It was prescribed by one of the best physicians in this country for years, and is a regular prescription. It is composed of the best tonics known, combined with the best blood purifiers, acting directly on the mucous surfaces. The perfect combination of the two ingredients is what produces such wonderful results in curing Catarrh. Send for testimonials, free.

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Sold by druggists, price 75c.
Hall's Female Pills are the best.

To the Farmers of the South.

The past two months has brought us a wonderful increase in the list of our subscribers, and yet we are not satisfied. There are still thousands of farmers who read no agricultural journal and who carry on their work by rule of thumb and without the aid which scientific teaching alone can give them. These are the men who never make farming pay. We want to help them. We know we can do so if they will only read the *Planter*. For 50 cents they can have it for a year. We appeal to them to try what we advise. We ask those of our readers who have neighbors not reading the *Planter* to help us to secure them as subscribers. If each one will do so he will not only help us, but help his neighbor and help himself. The more subscribers we get the better journal we can afford to publish.

Whose Money?

We received on October 10th a remitance in stamps, renewing a subscription to the *Southern Planter*. The envelope was postmarked "Brightwood, Va.," but the sender omitted to sign his name.

We also received 50 cents in stamps on December 22, postmarked "Culpeper, Va.," without signature. We are unable to credit the owner unless claimed.

MAGAZINES.

The Forum for March has a fine table of contents. Amongst the articles are the following: "Government Deposits in Banks," by Geo. F. Roberts, Director of the U. S. Mint; "Our Mohammedan Wards," by Hy. O. Dwight; "Rights and Wrongs in South Africa," by George F. Becker; "Englishmen in the United States," by F. Cunliffe Owen; "The Hampton Roads Conference," by Hon. John Goode, President of Virginia Bar Association; "America's First and Latest Colony," by John Geo. Leigh.

The American Monthly Review of Reviews for March discusses the war in South Africa in its various phases, the Hay-Pauncefote treaty, the Puerto Rican tariff, our situation in the Phillippines, the Steamship Subsidy Bill, the Kentucky Disorders, Governor Roosevelt's Administration in New York, the approaching Presidential campaign, and many other timely topics.

The Balance-Sheet of a Small Maryland Peach Farm" is presented in the Review of Reviews for March, by Mr. Worth B. Stottlemyer, who shows that peach-growing in Maryland may be made an exceedingly profitable industry.

Appleton's Popular Science Monthly has a very thoughtful article on "The Transportation of a Race." It is a discussion of the forces which led to the introduction of the negro into America, and the condition attending his acclimatization. An article by Nelson P. Lewis, Engineer of Highways, deals with the question of road surfaces in cities. There are other articles of interest in the number.

The Saturday Evening Post, of Philadelphia, will have an article in an early number by Senator Beveridge, telling of what he saw of the American soldier in the field in the Philippines.

The Ladies Home Journal has a number of very interesting articles, and is, as usual, finely illustrated. It is a most excellent home journal, of great interest to ladies.

BOOKS AND PAMPHLETS.

The Corn Trade and Options Markets considered in Relation to Social Economic Problems, by F. Hammeesfahr. Gustav E. Stechert, publisher, New York. Price, 50 cents.

Tripartite Education. An address delivered by B. F. Johnson, President of B. F. Johnson Publishing Co., Richmond, at the annual meeting of the Southern Educational Association at Memphis, Tenn. Free on application to B. F. Johnson Pub. Co., Richmond.

We return thanks to Senator Martin for a copy of the official Congressional Directory.

FOOD FOR PLANTS.

This valuable treatise will be mailed free to any of our subscribers who may wish it, by Jno. A. Myers, 12 T John St., New York City.

"Great Haste is Not Always Good Speed."

Many people trust to luck to pull them through, and are often disappointed. Do not dilly-dally in matters of health. With it you can accomplish miracles. Without it you are "no good."

Keep the liver, kidneys, bowels and blood healthy by the use of Hood's Sarsaparilla, the faultless blood purifier.

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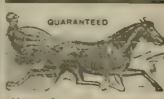
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Fine PEACH TREES a specialty. Everything for the Fruit Grower. Catalogue (in colors) free.

Lindsley's Nurseries, White House, N. J.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Division of Botany. Circular 22. Bur or Globe Artichoke.

Division of Entomology. Bulletin 22. Some Miscellaneous Results of the Work of the Division of Entomology.

Office of Experiment Stations. Bulletin 73. Irrigation in the Rocky Mountain States.

Section of Foreign Markets. Bulletin 16. Distribution of the Agricultural Exports of the United States, 1894–1898.

Farmers' Bulletin 108. Salt Bushes.

Farmers' Bulletin 110. Rice Culture in the United States.

Cornell Experiment Station, Ithaca, N.Y. Bulletin 177. Spraying Notes.

Georgia Experiment Station, Experiment, Ga. Bulletin 47. Fertilizer Culture and Variety Experiments on Cotton.

Bulletin 48. Strawberry Notes, 1899.

Maine Experiment Station, Orono, Me. Bulletin 55. Cereal Breakfast Foods.

Bulletin 56. Apple Insects of Maine.

Virginia State Weather Service, Richmond, Va. Report for January, 1900.

West Virginia Experiment Station, Morgantown, W. Va. Bulletin 61. Sheep Feeding Experiments.

Bulletin 62. A Study of the Effect of Incandescent Gas Light on Plant Growth.

West Indian Bulletin. The Journal of the Imperial Agricultural Department for the West Indies. Dr. Morris, Commissioner, Barbados, W. I.

CATALOGUES.

J. B. Watkins & Bro., Elmwood Nurseries, Hallsboro, Va. This well known and reliable firm send out a catalogue of such stock as they have ready for delivery this spring. Their trees are home-grown, and therefore acclimated. See their advertisement in this issue.

A. J. McMath, Onley, Va. Choice strawberry plants, shade and ornamental trees. Mr. McMath's plants are well known in the South.

J. W. Hall, Marion Station, Md. Second crop seed potatoes, choice berry plants. Mr. Hall has advertised with us a number of years, and we have never heard any complaint as to his stock.

L. L. May & Son, seedsmen, St. Paul, Minn. A well known Western seed house.

James Vicks Sons, Rochester, N. Y. Garden and Floral Guide. This firm's specialty is flower seeds.

The Electric Wheel Co., Quincy, Ill. This firm, whose advertisement will be found regularly in the *Planter*, is the pioneer maker of solid metal wheels for wagons and carts, and also the makers of farmers' handy wagons. Both these specialties have commended themselves to the farmers of the country, and are now largely used in every section. With solid metal wheels the old trouble of cutting and tightening tires is done away

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co. who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



ELECTRIC

This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs.



These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 146, Quincy, Ill.

$25 **That's What** we Save You on this Deal.

This Buggy has a high quality [illegible] Our Price $46.55

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EVERY PART IS STEEL



The lightest, yet the most durable harrow made. Easiest to adjust. The simple lever slants the teeth at any angle.

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pulverizes the ground or smooths it; does every kind of work you want a harrow to do, better than any other tool can do it. Circular free.

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For soft or rocky ground, the harrow that does the best work and draws easiest is **Hench and Dromgold's** riding or walking



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Wheel Harrow

Send for free catalogue of best harrows, cultivators, corn planters, grain drills, etc.

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THE ONLY TOOLS YOU NEED.

We have on hand 25,000 squares **BRAND NEW STEEL ROOFING.** Sheets either flat, corrugated or "V" crimped.

Price per square of 10x10 feet or 100 square feet..... **$1.75**

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Write for our free catalogue No. 166, of general merchandise bought by us at Sheriff's and Receiver's Sales.

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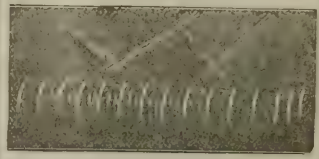
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with, and the broad tread enables wagons and carts to be taken on to soft land without trouble. The Farmers Handy Wagon is also a great labor-saver.

A. I. Root Co., Medina, O. Bee-keepers' supplies.

THE HALLOCK WEEDER.

We take pleasure in calling the attention of our readers to the advertisement of D. Y. Hallock & Son, Box 520, York, Pa., who are offering again this season their celebrated "Success" Anti-Clog Weeder. This implement seems to have



been a success from the very start, as last season this firm sold many thousands of them to the farmers of this country. As a No. 1 shallow cultivator, Messrs. Hallock & Son claim it to be without an equal on the market, and their claims are supported by hundreds of testimonials received from the users. We submit a recent one below, and a very strong letter from Mr. F. A. P. Thornton, Richmond, Va., endorsing the same, will be found elsewhere in this issue:

"This is the third year we have used the Success Anti-Clog Weeder. We used it for corn, potatoes, cabbage, tomatoes, etc., with wonderful results.

We had a good two-horse cultivator at the time we bought the Success Weeder, and we have not used the cultivator since, as one small horse and the Weeder will do more and better work than two teams and cultivators. The teams, of course, can be used for other work, which means a big saving. Yours truly,

J. F. GRAY & SON.

Youngstown, Ohio."

Messrs. Garnett Bros., Mitchells, Va., offered in our last issue one sitting of eggs free with the first ten orders received after February 1st. They report us splendid results from their advertisement, and hand us the following names that have received the eggs free: J. R. Pace, Oxford, N. C.; F. Lingenfetter, Cotman, Va.; Miss Lucie A. Hix, Prospect, Va.; M. Isbell, Stapleton, Va.; Mrs J. W. Hiter, Ellisville, Va.; W. T. Eure, Halifax, N. C.; Miss G. Humphries, Covesville, Va.; L. T. Harden, Siam, Tenn.; J. F. Barnhill, Oxford, N. C., and Mrs. Eliza R. Marshall, The Plaine, Va.

THE AVERY THRESHING OUTFIT.

We invite the attention of our readers to the advertisement of the Avery Manufacturing Company, 433 Iowa Street, Peoria, Ill. This firm manufactures some of the most practical and thoroughly up-to-date Threshing Machinery in the world. They claim for their machines that they have made more improvements beneficial to the threshermen in the last five years than all others combined. Our readers are requested to send for their 1900 catalogue, which will be mailed free.



FOR 14 CENTS

We want to gain the year 1900 new customers, and hence offer 1 Pkg. Cosy Corner Flowers, 10c
1 Pkg. Earliest Flowering Garden Mixture, 10c
1 " Strawberry Melon, 15c
1 " 15 Day Radish, 10c
1 " Early Dwarf Cabbage, 10c
1 " Early Dwarf Onion, 10c
3 " Brilliant Flower Seeds, 15c
Worth $1.00, for 14 cents. $1.00

Above 10 Pkgs. worth $1.00, we will mail you free, together with our great Catalog, to all above.

SALZER'S MILLION DOLLAR POTATO upon receipt of this notice & 14c. stamps. We invite your trade, and know when you once try Salzer's seeds you will never do without. $2000 Prizes on Salzer's 1900—rarest earliest Potato Giant on earth. Enyo.

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

STRAWBERRY PLANTS EXCELSIOR, the best early berry, and all the best new and old varieties. CABBAGE PLANTS now ready to set. MAGNOLIA TREES, the great blooming Magnolia of the South. Price-list free.

A. J. McMATH, ONLEY, VIRGINIA.

A Successful Pea Thresher.

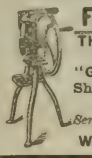
No more frails. Pea threshers cheap. Write for particulars. Satisfaction guaranteed. Freight cheap.

J. W. HAMILTON, - Houlka, Miss.

The CHAMPION PEA OR BEAN HARVESTER..

One of the greatest labor-saving implements on the market. Works perfectly. Simple, durable and cheap. Price, $5.00. Send for circular.

J. D. GRAY, Woodford, Va.



For POULTRYMEN!

The "DAISY" BONE CUTTERS
The Best in the World.
"Gem" Clover Cutter. The $5 Shell and Corn Mill. Farm Feed Mills. Power Mills.
Send for Circular and Testimonials.

WILSON BROS., Easton, Pa.

YOU SEND NO MONEY



$15.00

Until Goods Arrive!

All Steel and Iron but the pole. Easily handled by two horses. Send for delivery prices on all sizes. Disc Harrows, Lever Harrows, 11-foot Seeders. EMPIRE MFG. CO. 10 River St., Sterling, Ill.

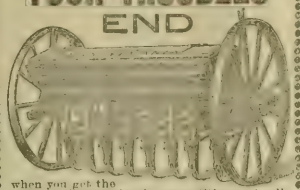
Kentucky Aluminum Stock Labels.

With name, address and numbers. Lightest, plainest, most secure, easiest put on, cheapest. Cattle labels, $2 per 100; sheep or hog, $1.75 per 100; aluminum leg bands, $1 per 100; pliers, $1. For free samples, address

F. H. JACKSON & CO., Winchester, Ky.

SEED POTATOES. Best pure stock; leading early and late varieties cheap. Illustrated catalogue free. A. G. ALDRIDGE, Fishers, N. Y.

YOUR TROUBLES END



when you get the grain drill that wins in competition with all others, the only one that sows fertilizer surely all the time, even when it's in bad condition, lumpy and full of trash. Get the

IMPROVED LOW DOWN PENNSYLVANIA

Force Feed Fertilizer Grain Drill

Cannot clog and will not bunch. Force feed in fact as well as in name. Simplest, most accurate and lightest running. Drill sows all kinds of grain, corn and peas with absolute regularity.



FARQUHAR KEYSTONE CORN PLANTER

Planting is pleasant when you watch the corn drop in the row of a Keystone Corn Planter. Its beautiful work, covering ten or twelve acres a day, is a constant pleasure to farmers who enjoy seeing work well done. The phosphate attachment is a perfect piece of mechanism. It sows any kind of pulverized fertilizer. The planter drops kernels in drills or hills with any desired spacing; works well even in rocky land. Plants ensilage, beets, peas, etc.

Send for complete illustrated catalogue of farm implements and machinery.

A.B.FARQUHAR CO., Ltd., York, Pa.

BOWSHER Feed Mills.



(Sold with or without Elevator.)

Will crush ear corn (with or without shucks) and grind any kind of small grain at the same time; mixing in any proportion. Have conical shaped grinders. Different from all others.

Lightest Running and Handiest to Operate. 7 SIZES. 2 to 25 horse power. One style for windwheel use. One style for cotton seed.

(Also make Sweep Feed Grinders.)

R. N. P. BOWSHER CO., South Bend, Ind.



CHICAGO CORN SHELLER $1.

Send us one dollar and we will send you a corn sheller that will shell your corn as well as the more expensive machines on the market. (Mention this paper.)

Hennion & Hubbell, 6365 Fulton St., Chicago

PAINT TALKS—XXV.

Fashion in Paints.

Fashion changes in paints quite as decidedly as in architecture and in dress, though perhaps not quite so capriciously as in the latter.

During the Colonial period, and now during the revival of its architectural forms, white paint was and is the sign of extreme elegance for the exterior, with rather light tints for the interior. For white exteriors there are several commendatory things to be said: first, a white painted building is fresh and clean looking; secondly, it is cool; and thirdly, amid the green of trees and fields, it presents a charming spot of high life.

The only consideration militating against a complete revival of Colonial colors (which seem naturally to belong to Colonial farms), is the inherent tendency of the commonly used white pigment to decline from its pristine state of whiteness in a discouragingly brief time. In short, the difficulty is that white lead will not remain white.

This defect, as I have already shown, is due to the chemical nature of lead compounds, which makes them eager absorbents of free sulphurous gases. The resultant lead sulphide is black, and its formation changes white lead paint to brown, yellow, or gray. Since it is impossible anywhere on the face of the habitable earth to find an atmosphere entirely free from sulphur compounds, pure white lead everywhere suffers the penalty of its chemical nature.

The cure for this natural defect is dilution with an inert pigment and protection with a stable white pigment. The popular combination paints fulfill these requirements, the lead in some of them being diluted with inert pigments like barytes, gypsum, etc., and in all of them protected by a goodly proportion of zinc white.

Some painters get over the difficulty by painting with lead and using zinc white for a final coat to protect the underlying layers. This method is probably less effective, and certainly more expensive, than the use of a properly prepared combination. Users of the better grade of the well known combination whites in the market need have no fear of results in adopting the Continental style of painting.

Stanton Dudley.

"CARRY SUNSHINE WITH YOU."

A bright, fresh, sunny face is always inspiring, and it always denotes good health as well as a happy heart. Many faces that were once overcast with gloom have been made bright and sunny by Hood's Sarsaparilla, which cures all dyspeptic symptoms, strengthens the nerves, and tones up and invigorates the whole system.

Constipation is cured by Hood's Pills, the non-irritating cathartic. Sold by all druggists.

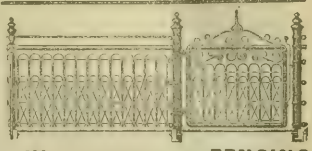
Our readers are invited to correspond with L. G. Jones, Bethania, N. C., before purchasing Essex Hogs and Southdown Sheep. He offers both of the best blood.

THE MILLION DOLLAR POTATO



Most talked of potato on earth! Our Catalog tells—so also about Salzer's Earliest Six Weeks' Potato. Largest farm and vegetable seed growers in U. S. Potatoes, $1.20 and upwards. Send this notice and 5c. stamp for Big Catalog. [illegible], 191

JOHN A. SALZER SEED CO. LA CROSSE, WIS.



We Manufacture FENCING

FOR ALL PURPOSES, Lawns, Parks, Farms, Cemetery and Grave Lots. The cheapest and best on any market. We pay freight on complete fence, and issue three catalogues free, (1) wrought iron, (2) steel picket, (3) farm, garden and poultry fencing. State which catalogue you want.

GATE CITY FENCE WORKS, 94 and 96 Edgewood Ave., Atlanta, Ga.



ORNAMENTAL FENCE!

25 different designs, they are all steel and cheaper than wood fence. Special prices to Churches and Cemeteries. Write us for catalogue.

KOKOMO FENCE MCH. CO., 428 NORTH ST. KOKOMO, IND., U. S. A.



IF YOUR CHICKEN NETTING

don't suit, try **Page Poultry Fence.** It's heavier.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free. COILED SPRING FENCE CO. Box 52. Winchester, Indiana, U. S. A.

POULTRY NETTING IN THE GLOBE

READ THESE PRICES

36 in. wide,	150 ft. long,	roll,	$2.25
48 " "	150 " "	"	3.00
60 " "	150 " "	"	3.75

Other widths in proportion.

MESH Dow Wire Works Co., Louisville, Ky.

M. M. S. POULTRY FENCE

Half cost of Netting; Requires few posts, no rails. Best Hog, Farm, Yard, Cemetery Fences. Freight paid.

KANSAS STEEL & WIRE WORKS, KANSAS CITY, MO.



FENCE MACHINE $10

Write for FREE CATALOG

BOWEN CABLE STAY FENCE CO. Box No. 25, NORWALK, O.

Farm Fence 18 TO 24C. PER ROD.

Buchanan Fence Co., Box 25, Smithville, O.

U-GET $15 SECRET how to make "Wall Paper Cleaner" to give to each lady you sell our Unequaled Door Mat or Portable Bed Springs, etc., to. Credit given. Outfits free.

ORDWAY & CO., 20 M Street, Peoria, Ill.

TWO hundred bushels of Potatoes remove eighty pounds of "actual" Potash from the soil. One thousand pounds of a fertilizer containing 8% "actual" Potash will supply just the amount needed. If there is a deficiency of Potash, there will be a falling-off in the crop.

We have some valuable books telling about composition, use and value of fertilizers for various crops. They are sent free.

GERMAN KALI WORKS,
93 Nassau St., New York.

The Chicago Steel Tank Co.,



193-195 South Desplanes Street, CHICAGO, ILL.,

Makes tanks of galvanized steel for storage, stock watering, creameries and dairies, Milk coolers, dipping tanks all sizes and shapes. Thrasher's wagon tanks, hog and sheep troughs and feed cookers. Satisfaction guaranteed. We are manufacturers. Agents Wanted

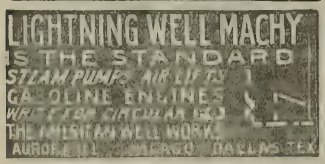


If YOU want a profitable investment buy

WYMAN'S UP-TO-DATE WELL-BORING MACHINE

It makes 150 or more drops of drill per minute and has more good points otherwise than all other makes of drills combined Circular free.

CHAS. E. WYMAN, Martinsburg, Ind.



USE LOOMIS' LATE IMPROVED

"CLIPPER" DRILLER



The result of 30 years' experience in Well Drilling.

LOOMIS & NYMAN, Tiffin, Ohio.

HALLOCK WEEDER.

Editor Southern Planter:

In reply to your request for my opinion of "Hallock's Weeder," I will say that I consider it to be the best weeder on the market. I bought one last spring and used it all the year, going over clover, oats and almost all kinds of crops planted or sowed on the level, as well as for working the corn crop, for which I found it to be the best implement that I have ever used. We went over the land four or five days after planting, and again soon after the corn came up. We ran across the rows, thoroughly pulverizing the ground and leaving it with a fine mulch and killing the young weed and grass in the sprout. When the corn was about six to ten inches high we ran over it again with the weeder, this time going with the rows. After that we gave the corn two workings with the "Iron Age" cultivator, sowing peas at the last working. The land was then clean and level. We went over the corn once with hoes to chop out the few weeds that came up after the weeder, but this work was light. I failed to say that the weeder scarcely pulls up any corn, although it works right over the plants, which dodge when the round part of the tooth touches them. The sharp points do not hurt the corn, as they are sharpened like a pencil. One average horse and man can work from ten to fifteen acres a day.

As I wrote Messrs. Hallock & Sons, I consider that I am doing as much of a favor to any farmer who I may influence to take the *Planter* and buy the weeder, as I am doing to the editor and makers of the weeder, as I think both are valuable friends to the farmer.

F. A. P. THORNTON.

Henrico Co., Va.

HOW A ROBE DE NUIT MORALIZED A TEXAS TOWN.

FOUNDED ON FACT.

It happened in Lampasas, when big Pete, the army mule, was on the stage line. There was nothing wrong about Pete after he started. The town believed in free range, and if due allowance was made in using the popular brand, to keep the big sulphur spring correctly located in the mind's eye, and assuming ordinary precautions against being chawed up by the porcupine race frequenting the plaza, the town was, like Pete, after it started all right. And the country! once afloat on the broncho's back was an overgrown Eden—nature enraged with herself—and how the world seemed to shrivel up going East again.

Then came a letter with a Texas postmark, saying how the town had been worked up to shooting point, owing to a bitter guessing contest about an article found in the dormitory of the hotel. Fortunately, as the climax seemed at hand, an adventurous drummer for a New York wholesale liquor house arrived and settled all disputes, by deciding that the article in question was what was used to preach in down East. So over the new brand it was concluded they had been entertaining an angel unawares. And the moral effect was like Pete after he started—a decided improvement. GRINGO.

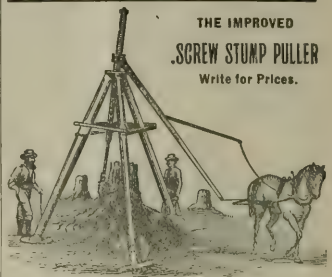
Make Money

on your *cabbages*, *onions* and *early beets*. How? Force their growth with applications of

Nitrate of Soda,

the quickest of all fertilizers. Especially adapted to early vegetables. Produces size and quality at the same time. Book, "*Food for Plants*," tells how and why. Free by addressing **John A. Myers,** 12 T John St., New York. *Nitrate for sale by fertilizer dealers everywhere.*

Write at once for List of Dealers.



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WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

ALL SIZES. WRITE FOR PRICES.

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Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

SOLD ON TRIAL



Imperial Pulverizer Clod Crusher Roller and Leveler.

Plainly described in circular, sent free. Farmers may try it before buying.

PETERSON MFG. CO., Kent, Ohio.



The Improved **CONVEX** and the Webster Calf **DISHORNERS**

Illus. book free.

are the most practical instruments made for cutting all kinds, shapes and sizes of horns. Easiest operated; no crushing; cuts closer, smoother, more humane.

WEBSTER & DICKINSON, Box 70, Christiana, Pa.

$150 SAW MILLS

For Farmers. Large Saw Mills for Lumbermen, Engines, Wood Planers, etc. Manufactured by the SALEM IRON WORKS, Salem, N. C.

MICA AXLE GREASE

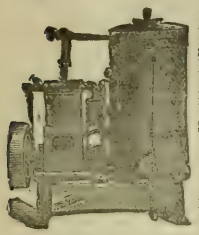
lightens the load—shortens the road.

helps the team. Saves wear and expense. Sold everywhere.

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STANDARD OIL CO.

After Being on the Market TEN YEARS,

The ACME Engine Still Leads



For Churning, Cutting & Grinding Feed, Filling Siloes, Sawing Wood, Elevating Water, and all Farm and General Uses where

Small Power is Required.

Fuel, Kerosene Oil.

No Skilled Engineer required.

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No. 17 Frank St., Rochester, N. Y

BAILEY'S HYDRAULIC RAM.

Runs 24 hours a day and 365 days a year.

40 year's experience.

Water for House, Water for Stock. Water for Irrigation.



Once started costs one cent per month. As simple as a wheelbarrow and as efficient as a Corliss Engine. Information and instruction in plain terms. Prices on Ram or complete outfit by return mail. Address

PRYCE W. BAILEY,
EXPERT Seneca Falls, N. Y.

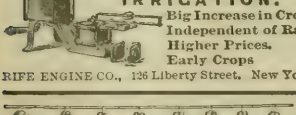
RIFE HYDRAULIC ENGINE

Pumps water without any attention or expense for

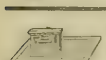
IRRIGATION.

Big Increase in Crops
Independent of Rain
Higher Prices.
Early Crops

RIFE ENGINE CO., 126 Liberty Street, New York.



Meat smoked in a few hours with
KRAUSERS' LIQUID EXTRACT OF SMOKE.
Made from hickory wood. Cheaper, cleaner, sweeter, and surer than the old way. Send for circular. E. KRAUSER & BRO., Milton, Pa.



GUARANTEED FOR 10 YEARS

U. S. Standard Stock and Wagon Scales save their cost many times over. For prices and descriptions, write at once to

GRAND RAPIDS SCALE WORKS,
39 and 41 So. Front St. Grand Rapids, Mich.

THE FERTILITY OF THE LAND.

By J. P. Roberts.

In his book on *The Fertility of the Land* Prof. Roberts has presented the agricultural student with a work of no ordinary importance. He offers no infallible *guide to success*, nor does he by any means propose to revolutionize the generally accepted principles of agriculture. On the contrary, he says: "It is far easier to start with only a few known facts, even without a knowledge of how best to use them, in the endeavor to determine the best practice, than to ignore those fundamental facts, and to endeavor to discover everything by experiment."

But after giving full credit to the facts and principles which have been proved, he explains clearly and concisely that still more knowledge is necessary in individual cases to render the application successful.

To illustrate: It is generally taught that plants requiring nitrogen, phosphoric acid, and potash, can be supplied a complete ration by the use of pea-fallow for the nitrogen, dissolved rock phosphate, and kainit; and yet, while this practice in wheat-growing succeeds well on some farms, it sometimes utterly fails on lands immediately adjacent. Prof. Roberts, in this connection, says:

"Much has been said and written about complete fertilizers—that is, those which contain nitrogen, phosphoric acid, and potash, in the proportion found in the plants to be grown. But plants vary widely in amounts and proportions of nitrogen, phosphoric acid, and potash; the variations are due to many causes, such as an abundance or lack of moisture, sunshine and inherited powers of the plants. Then, too, the soil varies more widely in the percentage of plant-food, and its availability, than the plants do."

And again: "It is manifestly impossible for every farmer to have the soil of even a single field analyzed; much less can he have a chemical determination made of all the fields * * * and even could this be accomplished, the difficult problem of productivity would be only partially solved. The difficulties met every day in every field can best be overcome by increasing the farmer's powers of observation, by developing his judgment, and by supplying him with clear-cut scientific facts, that he may have a basis for drawing correct conclusions from what he observes. In farming, as in religion, salvation is worked out through personal effort, illumined by knowledge, and directed according to the laws or modes of action which govern the subjects investigated."

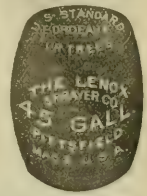
And again, in advice on the use of fertilizers: "There seems to be no alternative but to again send the farmer to the field, and admonish him to make the plants comfortable by tillage, and by the best possible use of the elements in the soil, and to keep a fairly tight grip on the phosphate sack until he has questioned the soil and the plants, and has received their answer. He must experiment for himself."

The foregoing extracts will afford the reader some idea of the spirit with which the author approaches his subjects, but

U. S. Standard Bordeaux Works.

Bordeaux for Spraying trees. In concentrated form. Manufactured under chemical supervision. Largest Bordeaux works in the world. Grinders of Bordeaux paint for painting trunks of trees. Cheaper than home made, save your muss and fuss. *Always reliable.* Is an insecticide and fungicide. Never clogs your nozzle. Never scorches. Gal. cans, $1; Doz. cans, $10; 5, 10, 15 and 20 Gal. kegs, 75 cts. per gal. Will mix 1 to 50 of water; for stony fruit 1 to 100 gals of water.



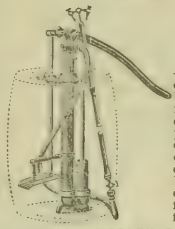


Costs less than one cent gal. when mixed. Two 45 gal. bbls. delivered to your station, freight paid, at same price. No deviation in price. One price to all. To nurseries, city parks and Commissioner of Groves, in two or three barrel lots at a discount. Directions how and when to spray with each can, keg, or barrel. Do not wait for the rush, get ready now.

THE U. S. STANDARD BORDEAUX WORKS.
The Lenox Sprayer Co., Prop.
South West Street. Pittsfield, Mass.

Southern States supplied by T. W. WOOD & SONS, Richmond, Va.

BUY A Good Spray Pump



—don't experiment—costs money. We have done the experimenting—used the common spray pumps in our own orchards, noted their defects, then invented the ECLIPSE. You get the benefit of our experience free. Send at once for catalogue.

MORRILL & MORLEY, Benton Harbor, Mich.

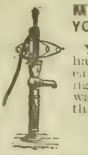
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ALL BRASS.

$17 outfit for $6.50, express paid.

Will spray a 10 acre orchard per day. 100,000 in use. Satisfaction guaranteed or money refunded. Illd. catalogue free. Agts. make from $5 to $15 per day. New improvements. Free Trial. Mention this paper.

P. C. LEWIS MFG. CO., Catskill, N. Y.



MAKES YOUR PUMP **Work Easy**

Yankee Pump Governors make the hardest pump work easy as the easiest. Windmills turn in the lightest breeze. Managing agent wanted for each county. Money in this for you. Write to-day. Dept. B.

BANE MANUFACTURING CO.,
55 W. Washington St., Chicago.

AGRICULTURAL • LIME

$1.00 PER TON.

FELLSWORTH LIME WORKS,
REEVES CATT, Agt., Bailey, Augusta Co., Va.

Also No. 1 Rock Lime for building. Send for card with price-list.



OLENTANGY INCUBATOR.
Too [illegible] each every [illegible] egg, so [illegible] today. It is the best Self-Regulating machine made. Brooders [illegible]. Catalogue free. Address, GEO. S. SINGER, Cardington, O.

The IMPROVED
VICTOR Incubator
[illegible] Catalogue free.
Sent free. GEO. ERTEL CO., QUINCY, ILL.

ROOM AT THE TOP
Recognizing that there was room at the top, we have issued [illegible] but the
20th Century Poultry Book.
Contains the latest and best thought on the poultry question, from the egg through all its changes, to the market. No subject passed. Written from practical experience. The world renowned Reliable Incubators and Brooders, used all over the U. S. and in 51 foreign countries, receive deserved attention. Book mailed anywhere for 10c.
RELIABLE INC. & BROODER CO., Box B 111 Quincy, Ill.

SAN JOSE SCALE and other insects can be controlled by using
Good's Caustic Potash Whale Oil Soap, No. 3.
It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, $2.50; 100 lb. kegs, $4.50. Half barrels, 270 lbs., at 3½c. per lb.; barrels, 425 lbs., at 3½c. Large quantities, special rates. Send for circular.
JAMES GOOD,
514 to 518 S. Randolph St., PHILADELPHIA, PA.

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Axle Grease Best in the world.
Its wearing qualities are unsurpassed, actually outlasting 3 box. any other brand. Not affected by heat. Get the Genuine.
FOR SALE BY ALL DEALERS.

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DR. KNOBLAUGH'S FISTULA CURE
FISTULA, POLL EVIL,
In 4 to 16 weeks. When just forming usually cures without discharging, in four weeks. Humane and easy to give. Price, 50 cts. By mail, 60 cts. Treatise free upon application
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the attentive study of the whole work is necessary to appreciate the real value of his information and suggestions. The four chapters on *The Evolution of the Plow, Tilling the Land, The Conservation of Moisture*, and *Irrigation and Drainage*, taken together, form a most important contribution to agricultural literature, and will prove to be of the greatest practical assistance to the student farmer.

Nor does this portion of the work, while affording quite a complete treatise on the preparation and cultivation of the soil, at all exhaust the valuable contents of the work. The tables and analyses of manures, fertilizers, and "amendment" applications, as he terms them, such as combination of lime, salt, plaster, &c., are replete with stores of useful knowledge for constant reference in agricultural practice. In no other work, perhaps, can we find such compendious instructions for the manufacture or mixture of "home made" fertilizers, reducing the analyzed proportions of different ingredients to actual pounds, and showing how any fertilizer of required specification can be most effectively and economically prepared at home.

His suggestions on the preservation and application of farm manures are also what may be termed *strong light on old subjects*, and special attention is bestowed on green manures and crop rotations.

Taken all together, it comes very near the publisher's notice, which claims that it is "the most important single book of farm methods." And now, when there seems to be a revival of interest in sugar beet culture, a very timely and instructive treatment of the subject will be found in the Appendix B, Notes to Second Edition.

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(We can supply the book.—Ed.)

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Don't give to me the girl who sings
As if she were on eagle's wings;
Or like some owl who loves to *screech*
At moonlight—oh! don't, I do beseech.

Don't give to me the girl who *screams*,
And waves her arms as if in dreams;
With heaving breast and rolling eyes,
As if she sang unto the skies.

Don't give to me the girl who *yells*—
It may be song—yet only tells
That such are not kind nature's notes
As should come forth from human throats.

But give to me the soft low tones
Of maiden, fair, which nature owns;
As trembling on the air they rise
Like fragrant incense to the skies.

Or, give to me a gentler lay—
A mother's song at close of day,
When to her cooing babe it brings
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THE FAMILY JUGGERNAUT.

MARY W. EARLY, LYNCHBURG, VA.

CHAPTER I.

Dr Melville Trent, after attaining the age of 28, passed through the universal experience of young people—that is to say, he fell in love. His choice was Alice Lesley, a lovely young girl, sensitive and shy, but very sweet and bright in an atmosphere of affection.

Dr. Trent had living with him a sister, ten years his senior, a managing, executive woman, fond of him in her stern way, but as despotic towards him as when he had been thrown on her charge, at the age of ten, by the death of their parents. She seemed unable to realize the lapse and changes of time, but still expected to judge and decide for her brother in every matter. Nothing could exceed her amazement when she found he had the hardihood to choose for himself and do his own wooing. She was much annoyed at what she deemed this weakness, and purely superfluous act on his part. It seemed to her that with such a superior manager as herself at the head of his house, it would be far more rational and comfortable for things to go on as they were, but Melville, for once, stood firm against his sister's disapprobation, so she had to reconcile herself to the marriage with the best grace she could. She made a feint of offering to leave the house to the young couple, and Melville made the mistake of his life in not accepting this offer, but not only did he dislike the idea of turning his sister out of her old home, but he thought that with her practical knowledge and executive capacity, she would be a help to his inexperienced young bride. He did not yet realize the fact that for Paradise to be such, Adam and Eve must have it to themselves, or at least, have no uncongenial element there.

Already the shadow of his sister's domineering disposition began to fall over the bridal preparations. He had set his fancy on a lovely set of white ash furniture for Alice's room, thinking it looked pure and dainty like herself, but Miss Sarah took such a stand against it that he was compelled to give it up. "Surely," she urged, "the set of mahogany that was good enough for our mother is good enough for any one else." So instead of the fairy-like bower into which Melville had wished to instal his young wife, on her arrival at her new home, a sombre apartment awaited her, fitted up, it is true, with good, substantial furniture, but very gloomy looking, and this initial incident was the key note to all that followed, in which Miss Sarah was concerned.

Alice, just taken from a large, cheerful and affectionate family, required a bright and loving atmosphere to keep the tender, transplanted flower from drooping, and this atmosphere would have fully pervaded her new home had it been occupied solely by her husband and herself, but the stiff, ungenial, unsympathizing presence of Miss Sarah was a perpetual restraint and constraint. No caress, no word nor act of playfulness could take place in her presence any more than flowers could bloom in Alpine snows. When Alice came to her new home it was her first impulse, when she heard

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her husband's step at the door, to fly there and meet him, but Miss Sarah rebuked her, saying that such demonstrations were childish, and would expose her to the ridicule of the neighbors and passers by, so she learned to constrain her feelings and sit quietly in her chair till he entered the room, and then the sweetness of his greeting and caresses was so much marred by Miss Sarah's cold and rigid look and manner that it gradually came to be tacitly understood between the pair that they would meet without any demonstration. Little jests and playful chats, such as they used to indulge in during their courtship and bridal trip, died away on their lips in this frigid atmosphere. Alice, who was naturally shy and sensitive, shrank more and more within herself, till, at length, their evening conversations became almost limited to monosyllables. To bridge over this constraint, Dr. Trent proposed to read aloud, but, as Miss Sarah always selected the book, it was of such a strong-minded and tedious nature that Alice would fall asleep before five pages had been read, which would elicit fresh scorn from her sister-in-law.

Shortly after her brother's marriage, Miss Sarah tendered the keys to Alice, not, we suspect, as a mark of respect or consideration, but for the purpose of humbling her by thoroughly laying bare her ignorance and inefficiency. Alice, who was both timid and inexperienced, begged Miss Sarah to retain the keys, but the latter, with sinister intent, persisted so strongly on transferring them that Alice had to yield, especially as she saw that her husband desired it. He began to feel that the true place for his wife was at the head of his table, and his house, but wished her to fit herself for the position under his sister's guidance and help till the novitiate housekeeper should have become sufficiently full fledged to sustain herself in her flight. But though he meant this arrangement for the best, he failed to take into consideration the respective characters of the two women who were to enter into it. It would have been better for Alice to have blundered along by herself, no matter how egregious her mistakes, and to have gradually learnt the right way, than to have had such a juggernaut as Miss Sarah presiding over her. Her little mistakes and failures, which would have been lovingly overlooked or patiently borne, had she and her husband been alone, were looked on by Miss Sarah as "worse than a crime—a blunder"—to use Napoleon's expression. Her manner and countenance were such when summoned to meals, as she glanced around at the dishes, that Alice would feel her cheeks tingle and her eyes fill with tears. Naturally, an inexperienced young woman of twenty was a far inferior housekeeper to one who had been engaged in that pursuit for that term of years, but Alice had a fair amount of capacity and a willingness to learn, and would soon have become a creditable housekeeper in a different atmosphere, but her sister-in-law's disapproval and criticism weighed on her like such a nightmare that she would not continue to run the gauntlet, but at the end of a month, resigned the keys secretly to the satisfaction of Miss Sarah, who thought

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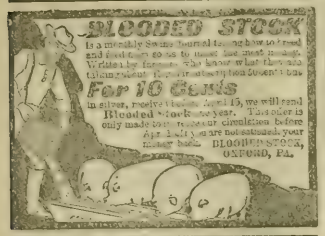


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she had triumphantly demonstrated to her brother how much superior she was in thrift and management to his foolish little child of a wife. Towards the close of the year, when Alice was feeling nervous and badly, she felt more and more oppressed by her sister in-law, but a feeling of delicacy and regard for her husband's feelings kept her silent towards him, and when he found her depressed, he attributed it to her physical condition. He loved her even more dearly than when she was a bride, but at the same time he was dimly conscious that their married life had not been altogether as happy as he had expected, nor their home such an Eden, but he could not distinctly locate the cause, partly because his sister had established an almost hypnotic influence over him, and partly because his large practice had taken him so much away from home In his humility, he was inclined to think the fault lay with himself.

CHAPTER II.

At length, that great event in the life of a young couple took place—the arrival of the first born child. A new and pure world of happiness opened on the young husband and wife, and even Miss Sarah's rigidity relaxed a little as she took her little nephew in her arms. But it soon became evident that she regarded the little fellow as only an additional subject to rule over, and she set about establishing a set of regulations for his management, and preparing decoctions to give him for colic and other infantile troubles, although Alice timidly pleaded that she would rather try homœopathic pellets for his ailments. Miss Sarah, however, vetoed these with scorn and insisted on drenching the infant with decoctions of horehound and catnip whenever she fancied that he had cold or colic. She issued a fiat that he should only be suckled at certain hours, and no matter how much he fretted between times, Alice did not venture to put him to her breast except by stealth. In short, Miss Sarah showed such a determination to take the child's management into her own hands that Alice commenced already to think with dread of how the little fellow's freedom and happiness would be marred in a few years by her iron rule.

But about this time a truce occurred. Miss Sarah had another brother besides the Doctor, a Professor, to whom she paid an annual visit, and as soon as Alice was well over her confinement, Miss Sarah started on her periodical visit to Professor Trent, leaving the young couple alone in their home for the first time. Alice's spirits rose, and she commenced regaining her strength rapidly. For the first time, she felt unconstrained and mistress of her own house. She could kiss and pet both husband and child whenever she felt so disposed. She could talk either sense or nonsense, knowing that neither would meet with sneers. Instead of the silent meals they had had under Miss Sarah's shadow, the table was now enlivened with merry talk, and if the food was not always superlatively good, it was at least seasoned with affection and good humor. Two months passed by in this halcyon state of things, when one night, after an unusually pleasant, cheerful even-

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Being over-stocked, I will sell a few last spring gilts, bred to COMMANDER II, a son of Imp. COMMANDER, and out of LONGFELLOW sow. They are registered and well grown. If taken before March 15th, I will sell five of them for $90, crated and in the Express office; or $20 each. Almost common shipping hog prices. I also have several sows, large and with pig, that are fine breeders, that I will sell at $30 a piece. Address

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RICHMOND, VA.

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ing, Dr. Trent remarked, "It is almost time for sister to be coming home." The sudden revulsion of thought and feeling was too much for Alice. She burst into tears.

Startled and shocked, her husband exclaimed, "What is the matter, my darling?" "Nothing," she stammered, in confusion. "I am only foolish and nervous."

But it suddenly flashed over Dr. Trent how the case stood, flashed over him so vividly that he wondered how he could have been so long blind. All the mystery of the past shadow was now explained. He spent an almost sleepless night trying to solve the problem of how he was to do his duty both to his wife and sister. At length the right course seemed made plain by the Bible verse, "For this cause shall a man leave father and mother and cleave unto his wife." "And if father and mother," thought he, "surely he ought to leave a sister too for the sake of his wife, "for he has no right to bring an element into the house that will mar his wife's peace and happiness. He talked the matter over with Alice, and though she shrank from the responsibility of severing her husband from his sister, she could not deny that the latter had cast a shadow over her happiness. Melville made up his mind that he must provide another home for his sister, but he dreaded inexpressibly writing the letter which was to communicate this resolution to Miss Sarah. He deferred it three days, but on the fourth he announced, "This day shall not pass without my writing that letter." Still he postponed it to the afternoon, and then he went into the library and nerved himself for the task. He dated the letter, wrote "My dear sister," and then paused. Just then Alice came to the door, bringing a letter the postman had just left.

It was from Miss Sarah. As he read it, there was a gradual change in his countenance. It expanded from smiles into broad laughter, and as he finished it, he tossed up his hat and gave three cheers like a boy.

"What in the world is the matter?" asked Alice, thoroughly mystified.

"Why, my dear, this letter contains the most wonderful and delightful news you can imagine. Sister announces that she is going to be married!"

"Married!!"

"Yes, she is going to marry one of the professors, a widower with four boys, and his household going to wreck like the Jellebys'. I suppose the old fellow noticed sister's talent for command, and thought she would be the right woman in the right place in the disorganized household."

Never was the news of an engagement received with more delight. Melville felt like a reprieved prisoner when he found himself relieved of the necessity of writing the dreaded letter to his sister. Instead of this, he sent an effusive one, conveying heart-felt congratulations. He and Alice were now for the first time in their true position as master and mistress of their house, which proved to be as cheerful and tranquil a home as we could find amid the vicissitudes of this transitory life.

A CORRECTION.

In the advertisement of the Farmer's Mutual Benefit Association, Chester, Va., in February issue, the property insured read $21,500, when it should have been $215,000. The general agent, in calling our attention to the error, advises us that at this writing the amount of property insured is $240,000, a considerable advance over previous figures. Farmers intending to insure property are requested to write to the above named company before doing so.

FINE FARMS in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address
SAM'L B. WOODS, Charlottesville, Va.

ODORLESS PHOSPHATE.

Jacob Reese, 400 Chestnut St., Philadelphia, Pa., is advertising elsewhere in this issue a celebrated Odorless Slag Phosphate. Our readers are requested to write for prices and circulars.

ROCK HILL FARM.

Shorthorns, Shropshire Sheep
..AND..
Poland-Chinas

A Few Choice Gilts Unbred..

B. B. BUCHANAN,
BROWNSBURG, VA.

FARMERS' LIBRARY!

SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
FERTILITY OF THE LAND,	$1.25
FEEDS AND FEEDING, -	$2.00
TOBACCO:	
How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

CHICKENS AND EGGS



Are the most profitable sources of revenue on the farm. Like other things, it requires much time and attention to be a successful poultry raiser, while the necessary requisites are being constantly added in order to accomplish the desired end. Among the greatest hindrances may be mentioned the various diseases peculiar to fowls, such as CHOLERA and GAPES, which can not only be speedily and permanently eradicated, but their appearance again prevented by the occasional use of **POLK MILLER'S**

"VICTORY" POULTRY FOOD

An excellent preparation, indispensable to every poultry raiser. It is not a food as its name implies, but a scientifically PREPARED MEDICINE (put up in handsome tin boxes) a given quantity of which is to be mixed with the usual quantity of food. For sale by all DRUG and COUNTRY STORES. If your merchant hasn't it in stock, get him to get it for you.

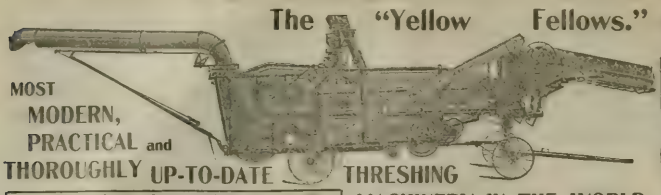
PRICE, 25c. per Package; By mail, 35c.



MANUFACTURED BY

POLK MILLER DRUG CO.,

RICHMOND, VA.



The "Yellow Fellows."

MOST MODERN, PRACTICAL and THOROUGHLY UP-TO-DATE THRESHING MACHINERY IN THE WORLD.

LESTER PRAIRIE, MINN., Nov. 16, 1899.
AVERY MANUFACTURING Co., Peoria, Ill.
Gentlemen: We sold one of your Minneapolis Steam Threshers with Beaver and Weigher, and [illegible] and she is a dandy. Only lost one [illegible] in forty days' threshing. She is something out of sight. All the neighbors agree with me that this machine beats anything to this part of the country.
Yours truly, JOSEPH HOLSLAGEN.

In last five years we have made more useful improvements beneficial to threshermen than all our competitors combined. Write for our 1900 Catalog now ready.

AVERY MANUFACTURING CO.
No. 433 Iowa Street. . . . PEORIA, ILL.

DELAINE MERINO SHEEP.

The Standard Delaine Merino Breeders met at Columbus, Ohio. The meeting was called to order by the President, John Pow, of Salem, Ohio, who made a very interesting talk at the opening.

A good number of the members were present. Among those from a distance were Adsit Bailey, of New York, and R. F. Bailey, of Michigan. The Secretary's report showed that the receipts for the year were $302.65. Expenses, $213.94. Number of sheep recorded during the year, seventeen hundred and forty-nine.

The election of officers for 1900 were as follows: President, John Pow, Salem, Ohio; Vice-Presidents, A. Crittenden, Nova, Ohio; E. D. King, Burlington, Kansas; R. F. Bailey, Pittsford, Michigan. Secretary, S. M Cleaver, East Bethlehem, Pa. Treasurer, C. S. Chapman, Marysville, Ohio.

We wish to call the attention of our readers to the advertisement of the Kalamazoo Carriage and Harness Co., which makes its first appearance with this issue of our paper. These people are large manufacturers of vehicles and harness, and have just recently adopted the plan of selling their goods direct to the consumer. As will be noticed from the advertisement which appears elsewhere in this issue, they make the new and entirely novel offer to sell vehicles or a harness at less than wholesale prices. Considering their large and completely equipped factories, we should say that they were entirely justified in this claim, for they certainly have the means at hand to make the public this unparalleled offer. Our readers will observe by reading this advertisement that these people make a most fair business proposition. All goods are shipped subject to the approval of the customer, and if not found entirely satisfactory and exactly as represented, may be returned at company's expense. It will certainly pay our readers to write these people for catalogue before buying goods of this class.

RAPE, 25 CENTS A TON.

Greatest food on earth for sheep, cattle, and swine. Salzer's catalogue tells also about Million Dollar Potato, and is mailed you with 10 Farm Seed Samples for 10c. postage. John A. Salzer Seed Co., La Crosse, Wis.

Sunny Bank Poultry Ranch

Barred Plymouth Rocks,

..EXCLUSIVELY..



SIR WALTER.

Nothing in our yards but the **purest strains extant**, viz.: Thompson, Bradley Bros. and Miles. We are now booking orders for EGGS for hatching, 15 for $1.00; 100 for $5.00. **We pay express charges** on all orders amounting to $3 or ever,

OUR GUARANTEE IS THIS: Any one failing to get ten chicks from a sitting of our eggs we will furnish an extra sitting at half price.

REMEMBER, you can order now, and have your eggs shipped any time during hatching season. Eggs are carefully selected, packed and shipped in the latest patent box, made especially for the purpose. **100 Pullets for sale, $1.50 each; $15. dozen.**

GARNETT BROS., Mitchells, Va.



LAYERS and BROILERS.

Professional Poultrymen now call for a strain of **B. Plymouth Rocks BRED** for this purpose. We have supplied such for several years. And they know. See? It costs little to try at $1 00 per setting for eggs; $1.00 up for stock. Staying behind may cost more. Interesting illustrated catalogue free. Fine references. Address

GEO. HARRISON MORRIS,
ASHLAND, VIRGINIA.

FERTILIZERS—FROM FACTORY TO FARM

WE SELL YOU DIRECT. NO AGENT'S PROFITS.
NO SALESMAN'S EXPENSES.

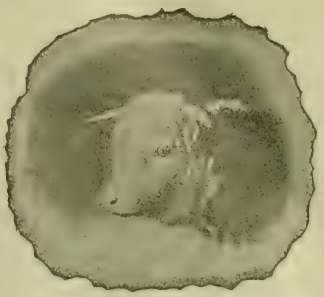
VALUABLE PREMIUMS GIVEN FREE.

For premium list, prices, samples and book, write

THE SCIENTIFIC FERTILIZER COMPANY, HERR'S ISLAND, PITTSBURG, PA.

Castalia Herefords

STOCK FOR SALE



IMP. SALISBURY
AT HEAD OF HERD.

MURRAY BOOCOCK,

"CASTALIA," KESWICK, VA.

INTERESTING AND VALUABLE.

The Superintendent of the Lenox Sprayer Company, of Pittsfield, Massachusetts, delivered an address before the Lenox Horticultural Society at Lenox, Mass. The address bore chiefly upon spraying and general culture of the orchard and field crops, how to do it, do it cheaply and good, and how to obtain the most profit from your labor in the easiest manner. The address is quite lengthy, and about an hour's talk. Owing to other matter ahead of it, we cannot publish it in this issue. The address is almost a colleage education to fruit-growers, fruit-dealers, and, in fact, to anybody eating fruit or even having few or many fruit trees, or in any way concerned. The full address, profusely illustrated, is printed in pamphlet form. It is plain in language, sound in argument, and free from technicalities. Had this book been placed on the market, it would no doubt have sold at a good price. It will be sent complimentary to any one enclosing ten cents for postage to the Lenox Sprayer Company, South West St., Pittsfield, Mass.

WASHING DISHES.

To wash dishes in half the time, and do it well, follow this recipe: Always use hot water—not warm, but hot. It is best to use mops with china and glass, and to have a nice lather; instead of using soap, use Gold Dust Washing Powder; dissolve a tablespoonful in the hot water and wash quickly; have plenty of nice dry towels to wipe with; have a drainer that will allow the water to run off the dishes into the receptacle below, when you will have highly polished glass and china.

MATHUSHEK PIANOS.

In our February issue through typographical error our printers made the above-named piano appear "Methushea." This instrument, as well as other pianos and organs, are handled by the well-known Southern Music House—Ludden & Bates, New York City. Send for their catalogue and prices.

C. C. Taliaferro,

NASONS, VA.

"MOUNT SHARON" STOCK FARM.

Red and Grade HEREFORD CATTLE

BRONZE TURKEYS and MUSCOVY DUCKS

Registered SHROPSHIRE SHEEP

Registered POLAND-CHINA PIGS.





NOW OFFERS FOR SALE:

HEREFORD CATTLE.—Calves, entitled to registration, $50 to $75. Calves by "Sir Edward" grades, $20 to $30.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $12.50 to $20. Ewes, one year to three years' old, $10 to $12. Buck Lambs, delivered July 1 to 15, $7.50. Ewe Lambs, delivered July 1 to 15, $5.50.

POLAND-CHINA HOGS.—Pigs, six weeks' old, $5. Pigs, three months, $6.50. Pigs, five months and over, $9 to $15.

BRONZE TURKEYS.—Pairs, $6; trios, $8.50. Eggs, per sitting, $2.50.

PLYMOUTH ROCKS.—Pairs, $2.25; trios, $3; Eggs, per sitting, $1.

MUSCOVY DUCKS.—Pairs, $1.50; trios, $2.25. Eggs, per sitting, $1.50.

WILLIAM L. Jr., No. 21058, half brother of Axtell, is now in the stud, and will serve limited number of mares for $25 the season. Mares boarded at lowest figures. Colts by William L, Jr., 21058, one, two and three years' old, for sale at lowest cash prices.

"PASTEUR" BLACK LEG VACCINE,

The original and genuine preventive vaccine remedy for blackleg. Officially endorsed in all the cattle raising States. Successfully used upon 1,500,000 head in the U. S. A. during the last 4 years. Write for official endorsements and testimonials from the largest and most prominent stockraisers of the country. "Single" treatment vaccine for ordinary stock; "Double" treatment vaccine for choice herds,

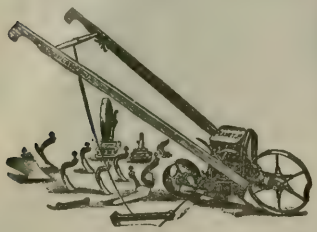
Registered **"BLACKLEGINE"** Trade Mark.

"PASTEUR" single treatment Blackleg Vaccine READY FOR USE (no set of instruments required). No. 1 (about 10 head), $1.50; No 2 (about 20 head), $2.50; No. 3 (about 50 head) $6. Easily applied. No experience necessary.

PASTEUR VACCINE CO., 712 GARDEN CITY BLOCK, CHICAGO, ILL.

NEW SEEDER AND CULTIVATOR.

The demand for a combined drill and double-wheel hoe has led S. L. Allen & Company, of Philadelphia, Pa., the well-known manufacturers of the popular "Planet, Jr" line of farm and garden tools, to put on the market this season their "Planet, Jr." No. 25 Combined Hill and Drill Seeder and Double-Wheel Hoe, Cultivator, Rake and Plow.



It is the most convenient and useful general purpose implement yet offered the gardener, combining in its make-up a greater variety of uses than any similar tool made. It is designed especially for those gardeners who have sufficient acreage of crops to warrant the use of a *double-wheel hoe*, and yet prefer not to buy a separate wheel hoe. It drills or drops in hills all kinds of vegetables and garden seeds, and by a simple change or two will cultivate any garden crops, throwing the earth to or from the row, hoeing, hilling-up, levelling, raking, etc.

It will probably pay a larger percentage upon the investment than any similar tool manufactured to day.

The second "Planet, Jr." tool to which we would call attention is the No. 8 Horse Hoe.



There is not a single line of cultivation requiring the use of a horse to which this tool is not adapted or necessary. It is capable of the greatest variety of work, being, as it is, easily adjustable as to depth, width of row, etc., etc. Taken with the different attachments, it is equal to the greatest variety of work. No implement manufactured to-day, requiring the use of one horse, is adapted to so many uses and produces such satisfactory results.

These are but two of a most comprehensive and extended line of garden and farm tools The remainder will be found in the "Planet, Jr." catalogue which, by the way, is the most complete we have ever seen devoted to any similar subject. Send to S. L. Allen & Company for this, and kindly say you saw this in our paper.

"Housework is hard work without Gold Dust"

Cleaning Silver

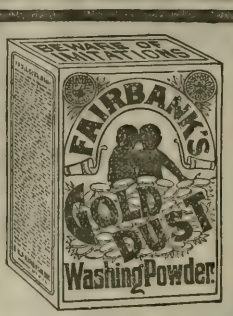
Instead of scouring and rubbing each piece of silver separately, the whole service can be as effectively cleaned in a few minutes. After each meal the silver should be put into a pan (kept especially for the purpose) and cover with luke-warm water, to which a teaspoonfull of

Gold Dust Washing Powder

is added; set the pan on the range until the water gets to boiling point, then lift out each piece with a wire spoon and lay on a soft linen cloth, wiping quickly with chamois skin. The pieces so cleaned will be highly polished and look like new.

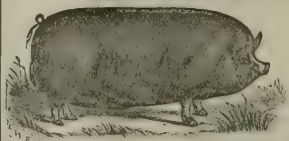
The above is taken from our free booklet "GOLDEN RULES FOR HOUSEWORK" Sent free on request to

THE N. K. FAIRBANK COMPANY,
Chicago. St. Louis, New York, Boston.



Registered Berkshires

"MAYOR OF BILTMORE" at Head of My Herd.



Write for my prices on pigs before purchasing elsewhere. I can furnish you the **finest** stock at reasonable prices.

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.

Correspondence solicited,

Southern and N. & W. Rys. T. O. SANDY, Burkeville, Va.

GASTON STOCK FARM.

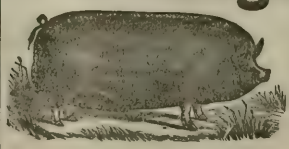
Holstein-Friesian and Jersey Cattle.

Having selected my foundation stock from the best, I can offer animals of each breed of highest breeding and individual merit, at moderate prices, containing the blood of the best families, and bred with great care.

I am prepared to sell HOLSTEIN BULLS, and BULL CALVES and JERSEYS of either sex.

JNO. U. DETRICK, Somerset, Va.

Pure-Bred English Berkshires



Swine of the finest breeding and individuality. Young stock of both sexes and all ages for sale. A trial order will convince you my Berkshires are all right. Pedigree in full with every pig sold.

M. A. GRIFFIN,
Richardson Creek, Union Co., N. C.

THE PREVENTION OF BLACK-LEG BY VACCINATION.

As no cure for black-leg has ever been discovered, the disease is very fatal after it once breaks out, and yet it is one of the easiest of animal diseases to prevent if stockmen will only take the trouble to vaccinate their cattle, which can be done for a few cents per head. This treatment is successful, as shown by the thousands of testimonials made by leading cattlemen of the country since the introduction into the United States of the original black-leg vaccine, manufactured by the discoverers and furnished by the Pasteur Vaccine Company. This treatment is likewise economical, for the usual death-rate from black-leg is 10 to 25 per cent., and by vaccination with the original (Pasteur) black-leg vaccine this is reduced to a minimum.

In order to obtain the full benefit of vaccination, calves should be treated just before the age and at the beginning of the season when local experience shows that they are liable to be attacked with black-leg. This age varies in different localities, but experience has shown that the best seasons for vaccinating are the spring or fall. However, on account of the comparatively mild weather that has prevailed in the Middle West, stock-raisers have been able to keep their cattle in good condition; and as cattle in such shape are more liable to be attacked with black-leg than during a severe winter, the disease has kept up quite generally this season, and therefore stockmen who neglected to protect their calves at the proper time have found it necessary to vaccinate this winter. It is unwise to wait until the disease breaks out before treating the cattle, yet it is not too late even then to apply the remedy with profit to the balance of the herd, for by so doing the further spread of the disease can be duly checked.

Last year, the Pasteur Vaccine Company introduced an improved form of black-leg vaccine, which makes vaccination even more simple and rapid than ever. This is called "Black-legine." It is not a new remedy for black-leg, but is simply an improved method of furnishing the celebrated Pasteur make of black leg vaccine in a form ready for use and administered in one application. "Black-legine" is extremely popular, and has for some time been used with remarkable success and satisfaction in all the cattle raising districts of the West.

The Pasteur Vaccine Company, whose headquarters are at 712 Garden City Block, Chicago, has branch offices at Fort Worth, Texas; Omaha, Nebraska; and San Francisco, Cal.

The Elkhart Carriage and Harness Manufacturing Co., Elkhart, Ind., send us a fine catalogue of their well-known specialties. Their advertisement will be found in this issue. Those wanting carriages or harness will do well to write this firm before buying, as we know them to be reliable, and to sell a good article at a fair price.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

GRASS SEEDS

GRASS SEED for HAY,
GRASS SEED for PASTURE,
GRASS SEED for GOLF LINKS,
GRASS SEED for LAWNS,

GRASS MIXTURES SPECIALLY PREPARED TO SUIT ALL CONDITIONS OF SOIL.

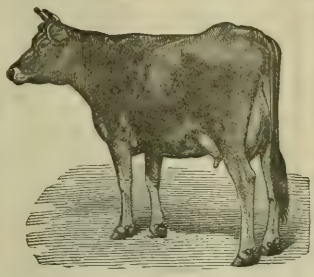
Our AMERICAN FARMERS' MANUAL for 1900, 32 pages, devoted entirely to Grass and other Seeds for the Farm, mailed free on application to those who state where they saw this advertisement. Correspondence invited.

PETER HENDERSON & CO., —35 & 37— CORTLANDT ST., **NEW YORK.**

POLAND-CHINAS "Hidestretchers," "Tecumsehs," "Chief-We-Know," "Wilks."

MARSH CREEK FARM, The home of great hogs of a great breed. Pigs from 20 sows for spring trade, $5 00 each, at 8 weeks old Weigh 400 at one year, 900 at maturity. SHROPSHIRE LAMBS, $10 00 each. Orders booked now.

WM. M. BIGHAM & SONS, Gettysburg, Pa.



JERSEYS FOR SALE

Some choice young COWS and HEIFERS, sired by the great St Lambert bull,

ETHEL'S JOHN BULL No. 29005 whose dam, Ethel of Shelburne, granddam Crocus of St. Lambert, and her full sister, the great Mary Anne of St. Lambert, have an average butter record of 22 lbs. and 7 ounces in 7 days.

Also some extra fine BULL CALVES out of high testing daughters of the above bull, and sired by our grand young bull,

ADMIRAL ST. LAMBERT No. 51338 whose dam, Flower of Meridale, has a butter record of 26 lbs., 11½ oz., in 7 days, and a daily milk record of 53 lbs., 8 oz.

We have also for sale some fine cockerels and pullets of Indian Game, Barred P. Rock and White Wyandotte forms.

BOWMONT FARMS, SALEM, VA.

BILTMORE FARMS,

BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

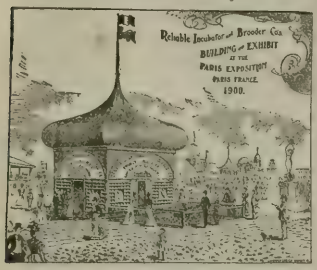
The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO **GEO. F. WESTON, SUPT.**

HATCHING EGGS AT THE PARIS EXPOSITION.

The Reliable Incubator and Brooder Company, of Quincy, Ill., which was successful at the Omaha Exposition in securing highest awards on this incubator and brooder, has arranged to make a good showing of these machines in Paris the present year. This machine has found a home in nearly every civilized country under the sun, and the company has complimentary letters from all over the world showing that they not only make good goods, but make goods that give satisfaction to their customers. They have secured space 25x16 feet on the main avenue fronting the World's Transportation building in Paris. They will con-



struct their own building and make the best exhibit of incubators and brooders ever put out in Europe by any incubator company. As an additional concession they are granted exhibition space in the Palace of Agriculture also. Note what Judge Theodore Hewes says in reference to the Reliable goods: "I have often visited their factory, have watched the workmen on the different parts of the machines, have paid close attention to the material used in their construction, and have yet to see a poor piece of material in any part of their incubators or brooders; in fact, I doubt if there is a company in the country that puts a better lot of material into their incubators and poultry supplies. They make every part of their incubators and brooders themselves, and each part is made in its own special department with a foreman to look carefully after the details, and this foreman is held strictly responsible for the quality of work turned out.—*Theodore Hewes.*"

We recommend that our readers send to the Reliable Incubator and Brooder Company, Quincy, Ill., for their Twentieth Century Poultry Book, one of the best treatises we have ever seen on the poultry question.

Send 10 cents to pay postage on it. Mention this paper.

TO BEE-KEEPERS.

We have recently received a copy of the illustrated catalogue of Bee-keepers' supplies, issued by The A. I. Root Co., Medina, Ohio, covering the entire line of goods connected with this extensive business, including hives, brood-frames, honey-boxes, honey and wax extractors, smokers, brushes, cases, jars, pails, tumblers, etc., together with a variety of other appliances such as are used by up to-date

McCORMICK MACHINES are built in the largest works in the world manufacturing harvesting machines and binder twine. McCORMICK holds the worlds record 213,629 machines built and sold last season. This enormous output has been created by building the BEST IN THE WORLD.

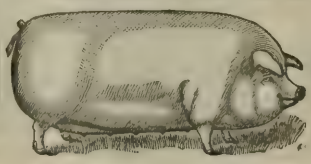
McCORMICK MACHINES ARE SO EASY TO HANDLE THAT YOUR BOY CAN OPERATE THEM SUCCESSFULLY IN THE FIELD.





SOUTHSIDE STOCK STUD,
ON ROANOKE RIVER, IN MECKLENBURG CO.
Trotting Horses, Red Polled Cattle, Dorset Horned, Shropshire and Hampshiredown Sheep, Berkshire Hogs, Pedigree Llewellyn Setters and Scotch Collie Dogs.
All Stock Thoroughbred and Registered.
GEO. B. FINCH, Prop., Boydton, Va.

.. BACON HALL FARM ..
HEREFORD CATTLE—Winners at ten fairs 1899.
DORSET SHEEP—Bred ewes and fall lambs.
BERKSHIRES—Only pigs at present.
SATISFACTION ALWAYS OR NO SALE.
E. M. GILLET, Verona, Baltimore Co., Md.



PLEASANT VIEW HERD OF..
REGISTERED
Chester White AND THE FAMOUS O. I. C. Swine
Can furnish pairs and trios not related. Pedigree furnished with every pig sold. Correspondence solicited.
ARCHIE C. ROPER,
Lock Box 122, CHARLESTOWN, JEFFERSON CO., W. VA

bee-keepers all over the United States. The pamphlet is filled from cover to cover with every possible form of information covering this particular industry. All the various appliances are fully illustrated, together with description and technical instruction of how to make a success of this business. It would seem as if it were impossible to ask a question on beekeeping that could not be answered by the contents of this pamphlet, and to that extent any one interested in the slightest degree in this line of work will find it a very interesting book.

BILTMORE FARMS.

Editor Southern Planter:

Highclere Topper, the champion Berkshire boar of England, and at the head of the Biltmore Herd of Berkshires, is now assisted by the outstanding champion of America, Columbia's Duke, who during the last three years has made a record in the principal stock shows and as a breeder which has never been equalled. He was auctioned off at Reuben Gentry's disposal sale for $1,250, and for six months we have been trying to secure him to use as an outcross on our imported English prize winners. With him came four grand show sows of the best Longfellow breeding, all soon due to farrow to Duke. The combination in one herd of two such boars, and the herd of prize-winning brood sows which it has taken years to breed and collect from two continents should be worthy of the attention of every breeder. During 1899 we shipped out 141 Berkshires and 42 Jerseys. This year we expect to double this, and shall at the present rate. We are largely indebted to readers of your paper for such encouraging results.

GEO. F. WESTON,
Superintendent Biltmore Farms.

VIRGINIA STATE HORTICULTURAL SOCIETY.

SAMUEL B WOODS, President, Charlottesville, Va.

A. F. Mosby, First Vice-President, Richmond, Va.; J. B. Watkins, Second Vice-President, Hallsboro, Va; W. H. Boaz, Third Vice-President, Covesville, Va.; W. B. Alwood, Fourth Vice-President, Blacksburg, Va.; David O'Rork, Fifth Vice-President, Staunton, Va.; Geo. E Murrell, Recording Secretary, Fontella, Va.; Walker Whately, Corresponding Secretary and Treasurer, Chairman Committee on Transportation.

CROZET, Albemarle County, Va.
January 22, 1900.

Dear Sir,—The Virginia State Horticultural Society held a very successful and encouraging annual meeting at Staunton on January 16-17, and we feel no hesitation in saying our efforts are becoming appreciated by fruit growers in this State generally. We desire to include in our membership every person who is interested in horticulture, whether it be apples, summer fruits, or truck farming. We are furnishing most valuable information for them in our annual reports, and we are also working to obtain more favorable rates from the Transportation Companies for carrying their produce to markets We have met with gratifying

20TH CENTURY CREAM SEPARATORS

EVERYONE who knows anything at all about cream separators knows that the "Alpha" disc system—patent protected and hence restricted in use to the De Laval machines—has revolutionized centrifugal cream separation just as centrifugal separation originally revolutionized previous gravity methods.

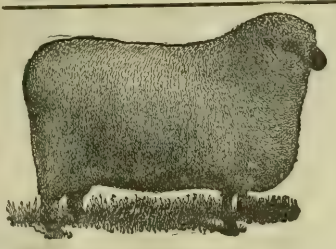
They further know that for five years every imitator and would-be competitor of the De Laval machines has been veritably "tip-toed" in the effort to keep alive in the separator trade—that many have dropped out and that others are on the verge of doing so; that none have made a pretence of keeping in the race except through exaggeration and misrepresentation, cheap construction, so-called "cheap" prices, and still cheaper values to deluded purchasers.

The latest development of the "Alpha" disc system, embodied in the 20TH CENTURY De Laval machines, still further increases their superiority—rendering them simply unapproachable in efficiency and practicability by anything else in the shape of a cream separator.

Send for new "20th Century" catalogue.

THE DE LAVAL SEPARATOR CO.

RANDOLPH & CANAL STS., CHICAGO
103 & 105 MISSION ST., SAN FRANCISCO
General Offices: 74 CORTLANDT STREET, NEW YORK.
1102 ARCH STREET, PHILADELPHIA.
327 COMMISSIONERS ST., MONTREAL.



FOR SALE

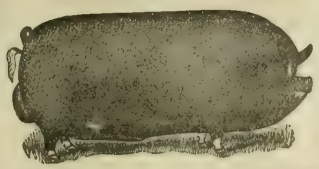
Highlands Stock and Poultry Farm....

at a very low price and on good terms.
Choice **SHROPSHIRE SHEEP** and **Lambs.**
The best **POLAND-CHINA, BERKSHIRE** and **CHESTER PIGS.**
Can furnish extra fine **DURHAM** and **JERSEY CATTLE** at farmer's prices.
EGGS, B. P. Rock and Silver Wyandotte.

If you want a good home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

A Union of England and America

THE MUCH MOOTED QUESTION SETTLED.

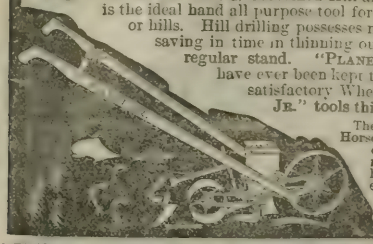


N. BENJAFIELD, at Motcombe, Shaftesbury, England, and THOS. S. WHITE, of Lexington, Va., can explain this Union. N. Benjafield stands at the top for thoroughbred English Berkshires in his country, and as Thos S. White got his start from said Benjafield, then, of course, the said White has the best blood in America. Fancy Pigs, but not fancy prices, now before the puplic.

Write to **THOS. S. WHITE, Lexington, Va.**

41 Pigs now Ready for Shipment, Some Ready for Service; Boars and Sows.

IT DOES DOUBLE DUTY.



This "PLANET JR." No. 4, Combined Hill and Drill Seeder, and Wheel Hoe Cultivator, Rake and Plow is the ideal hand all purpose tool for the small or private gardener. It sows seed in either drills or hills. Hill drilling possesses many advantages, the greatest of which are saving in seed, saving in time in thinning out and greatly increased crops by making a perfect and regular stand. "PLANET JRS." were the first drills made to drop in hills and have ever been kept the best for the purpose. Can be instantly changed to a most satisfactory Wheel Hoe for cultivating all garden crops. Like all "PLANET JR." tools this one is guaranteed to be satisfactory in every particular.



The entire "PLANET JR." line of tools, embracing Seed Drills, Wheel Hoes, Horse Hoes, Cultivators, Harrows, Two-Horse Cultivators, Sugar Beet Seeders, Four Row Sugar Beet Cultivators, &c., is described in detail in our new 1900 catalogue. We have published 350,000 of these and I think we have enough to "go round." To make sure that you get a copy, however, write to-day. Contains 16 page picture gallery. Free to all.

S. L. ALLEN & CO., Box 1107-X, Philadelphia, Pa.

success in this direction from the Express Companies, and, as an example, I quote the following statement made by one of our members at the Staunton meeting: "On May 22nd, 1899, I picked from my patch at Crozet, Va., 108 bushel crates of strawberries, weighing (at 50 pounds per crate) 5,400 pounds. The express charges by the old rate to Cincinnati would have amounted to $94.50, while the new rate, obtained through the Virginia State Horticultural Society, amounted to $54, a saving of $40.50 in one day's shipment of strawberries." We are hopeful of helping the apple growers in a similar manner. I trust that you will be disposed to help our efforts to encourage and build up this important industry of our State by becoming a member of this Society. If you need a better rate, express or freight, we will be glad to hear from you and will take the matter up.

I will forward a copy of our annual report, now in preparation, to all members as soon as it is issued. I would remind you that in order to enable our work in the interests of horticulture to be most successful, we need your influence and financial help. Please forward the annual fee, $1 00, to me at Crozet, Va.

Due notice will be given to all members of date and place of our next annual meeting.

I remain, yours truly,

WALTER WHATELY,
Cor. Secretary and Treasurer.

KEMP'S MANURE SPREADER.

The advertisement of the Kemp & Burpee Manufacturing Co., of Syracuse, New York, setting forth the qualities and advantages of their Kemp Manure Spreader, will be found elsewhere in this issue. These gentlemen inform us that forty of these machines were sold to the leading farmers of Virginia in 1899, and that the results have been satisfactory in every case. In fact, they have found this country so appreciative that they are led through this means to endeavor to secure an increased trade with our people. The manufacturers and the machine come to our columns well endorsed, and we have no hesitancy in recommending both to the careful consideration of our readers. Write them for catalogue and any other information which you may desire, and they will supply your wants cheerfully.

The Implement Co.

1302-1304 E. Main St., RICHMOND, VA.



BUGGIES, CARRIAGES, WAGONS, HARNESS.

All kinds; lowest prices. Special Buggy catalogue sent to any address.

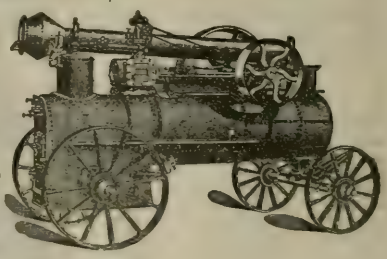
We are general agents for the

IMPERIAL CHILLED PLOWS

and REPAIRS, and can recommend them as the best plows to do the work with the least draft.

The BISSELL CHILLED PLOWS we have sold for years, and they have given universal satisfaction. The Bissell Plow Company is the only Company who have not advanced prices on Plows and Repairs. We likewise have the OLIVER CHILLED PLOWS and REPAIRS as well as the DIXIE and FARMERS' FRIEND CAST PLOWS and REPAIRS at low prices.

Engines, Saw Mills, Threshers, Horse Powers.



All kinds of AGRICULTURAL IMPLEMENTS.

CATALOGUE ON APPLICATION.

THE IMPLEMENT CO.,

Show-Room, 1302-1304 E. Main Street, RICHMOND, VA.

RICHMOND PRICES—FEB. 21, 1900.

COMMENTS FOR THE WEEK.

Tobacco—Brights—Unchanged; steady; Sun Cured—Receipts light; market fairly active. Dark—On account of very cold weather, receipts of loose have been light this week. Receipts of hogsheads coming in more freely. Market steady; last week's prices well sustained.

Wheat—Continues active with very light receipts.

Corn—Firm.

Oats—About steady.

Hay—Receipts ample for demand and market not so active.

Eggs—Dull; heavy receipts.

Butter—Receipts light; market active.

Poultry—Receipts liberal; market getting lower.

Virginia Bacon—Hams and shoulders in good demand; sides dull.

Potatoes—Quiet; receipts liberal.

Onions—Receipts continue light and market firm.

Apples—Light receipts; market active.

Hides—Continues steady with light receipts.

Sun-Cured Tobacco—New.

Lugs, common, 1.50 to 2.50.
Short Leaf, 3.50 to 4.50.
Long Leaf, 5 00 to 6.50.
Wrappers, 8.00 to 12.00.

Bright Tobaccos.

Smokers—Medium, 8 00 to 9.00.
Cutters—Medium, 13.00 to 15.00.
Fillers—Medium, 5.50 to 7.00.
Wrappers—Medium, 12 00 to 15.00.

Dark Tobacco—New

Lugs, inferior to good, 1.75 to 2.50.
Medium Leaf, 5.00 to 7.50.

Wheat—No. 2 Red, 79.

Bag lots, 70 to 78.

Corn—No. 2 White, 42½.
No. 2 Mixed, 41 to 41½.
White Corn, Va., bag lots, 42 to 43.

Oats—Winter Seed Oats, 55 to 60.

Hay—No. 1 Timothy, 16.00.
No 1 Clover, mixed, 15.00.
No. 1 Clover, 14 00.
Virginia Timothy, No. 1, 14.50.
Virginia, mixed, 12.00.
Clover, Virginia, 10.00 to 12.00.
Shucks—baled, 10.00.
Straw—Compressed, 8.00 to 8.50.

Flour—Mill Offal—Bulk. Shipstuff per ton, 16.50 to 17 00.
Bran, 16.00 to 16.50.

Poultry—Turkeys, live, gobblers, per lb., 8 to 8½.
Turkeys, live, hens, 10.
" dressed, gobblers, per lb., 10 to 10½.
Turkeys, hens, 12 to 13.
Chickens, live, per lb., 10 to 11.
Dressed, per lb., 11 to 12.

Fruits and Vegetables—

Oranges—Florida, per box, 3 00.
Blackeye Peas, prime to fancy, 1.40 to 1.50.
Common to good, 1.20 to 1,35.
Black Peas 90 to 1.00.
Clay Peas, per bushel. 85 to 90.
Mixed Peas, 1.00 to 1 10.
Potatoes—White, stock, per bushel, 52 o 55.
Potatoes—Rose, per bushel, 65 to 75.
" Virginia, per bushel, 50 to 55.
Cabbage—Per truck barrel, 1 50 to 2.00
" Per sugar " 2.25 to 3.00.

Be Fair with Your Fields

and they will be fair with you..... Listen a moment.



Every time you take a crop off a field you relieve it of just so much fertility. You should do something to restore that fertility. Barn yard manure is the best fertility restorative known if properly handled and properly applied. Even a small amount can be made to go a long way and accomplish great good if finely and evenly spread. This cannot be successfully done by hand—it is work for a perfected machine. The only machine known which accomplishes this is

The KEMP MANURE SPREADER.

It will Double and Treble the Value of the Manure Heap.

It spreads all kinds of **fine and coarse manure evenly;** it makes no "skips;" does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and makes it fine. Better than anybody can do it by hand. **Spreads lime, wood ashes, salt, etc.,** equally well. With the drill attachment **it puts the manure direct into the open drill.** Made in three convenient sizes. Ask the opinion of anybody that uses one. **Write for illustrated catalogue.**

Kemp & Burpee Mfg. Co., Box 28, Syracuse, N. Y.

VEHICLES AND HARNESS

At Less Than Wholesale Prices.

Ours is not a mail order house, buying from some factory to sell again at an increased price. **Ours is a large and completely equipped manufacturing plant** devoted exclusively to this line. We control absolutely all the elements of quality, style and finish and are thus enabled to **sell you better goods for less money** than any other house in the business. **WE GUARANTEE EVERY VEHICLE OR HARNESS WE SELL** as to quality of material, workmanship, style, etc. **We have no dissatisfied customers.** Write at once for our large illustrated catalogue—shows every article we sell. Mailed free.

KALAMAZOO CARRIAGE AND HARNESS CO., Box 90 KALAMAZOO, MICH.



No. 606—Canopy-Top Surrey, with side curtains, fenders, lamps, storm apron, sun shade and pole or shafts. Price, $63. As good as sells for $35 more.

Dont Take Any Chances

on an inferior vehicle or harness. Your life and that of your family depends upon their quality and reliability. You can't tell very much about the quality of a vehicle by simply looking at it. The paint and varnish effectually hides the quality of material. Vehicles must be bought largely on faith—faith in the honesty of the manufacturer.

WE HAVE NO AGENTS

but have been selling vehicles and harness direct to consumers for twenty-seven years. **In fact we are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.** These facts speak volumes for the quality of our goods and our method of doing business. You take no chances; we ship our vehicles and harness anywhere for examination and guarantee everything. **Send for our large Illustrated Catalogue before buying. IT'S FREE.**



No. 75—Single collar and hame harness, with nickel trimmings. Price, $14. Good as usually sells for $20.

ELKHART CARRIAGE & HARNESS MANUFACTURING CO., Elkhart, Indiana.

WE SAVE YOU MONEY ON FERTILIZERS.

Buy your fertilizers Direct at Wholesale Prices, and get your money's worth.

SPECIAL OFFER TO CLUB PROMOTERS.

WRITE FOR PRICES, SAMPLES AND PAMPHLET.

WALKER, STRATMAN & COMPANY, Pittsburgh. Pa.

THE SEEDS THAT NEVER GROW.

By the Man with the Hoe.

I nearly hate the thought of spring,
With its delightful sun,
For well I know the mail will bring
A pack from Washington;
A little package duly franked,
No postage stamps to show,
And it contains those little seeds—
The kind that never grow.

Our good and zealous congressman,
Remindful of our vote,
Upon his memorandum's page
Puts down a little note;
And when the proper time arrives
For us to wield the hoe,
He sendeth us the little seeds—
The ones that never grow.

How often have I plied the rake,
How oft I've lounged about
With eyes alert to catch the first
Signs of the coming sprout;
In vain, in vain my hopes have fled,
My heart has filled with woe;
About the seeds from Washington,
The seeds that never grow.

There're squashes with enticing names,
And cabbages, I wot,
So large that you would think that one
Would shade a garden spot.
So with the pack from Washington
You amble forth to sow,
With many a drop of sweat, the seeds
That never care to grow.

But yet each year my hopes revive
As spring reclothes the tree,
And to my homestead surely comes,
The package marked "M. C.";
And, foolish like, again I wield
The sprinkler and the hoe,
And like a ninny plant the seeds
That never care to grow.

As long as comes the package small
From far-off Washington,
I s'pose they'll see me working in
The shadow and the sun;
For fools work on while wise men die,
And this is why I know,
I'll plant those pretty little seeds
That never care to grow. —*Ex.*

THE WAR IN SOUTH AFRICA

Has demonstrated the great foresight of the Boers, in availing themselves of all the opportunities in times of peace to prepare for war. Similar foresight should lead you to improve the opportunity of securing better farms than theirs in this country. They are on line of the Chicago, Milwaukee & St. Paul Railway in Marinette county, Wisconsin, where the crops are of the best, work plenty, fine markets, excellent climate, pure, soft water; land sold cheap and on long time. Why rent a farm when you can buy one for less than you pay for rent? Address C. E. Rollins, Land Agent, 161 La Salle St., Chicago, Ill.

The weak-kneed and discouraged should take example by the mule. A mule never allows anything to kill him until he has made up his mind to die.—*E. W.*

IRON AGE AIDS

As soon as a man begins to mark garden rows he feels the need of just such a tool as the **No. 8 Iron Age Hill and Drill Seeder.** It is what gardeners long asked for but never had until this tool was perfected. It is simple, light, strong and capacious and it accurately drills or hills all the smaller seeds. Has a steel wheel 15 inches high, with a two inch tread. Hopper holds four quarts. Actuator is a revolving brush, making the feed sure. Opening plow is clog proof. A single move of the finger changes from hill dropper to row drill or the reverse.

BATEMAN MFG. CO., Box 167, Grenloch, N. J.

The Iron Age Hook for 1900, sent free, describes this and other excellent Iron Age tools

THE POPULAR MARKET-GARDENER'S TOOLS.

MATTHEWS New Universal Model Garden Drill Single Wheel plants straight rows at uniform and perfectly regulated depth. Fine regulation of exact quantity of seed dropped.

NEW UNIVERSAL Double Wheel Hoe, Cultivator, Rake, and Plow. Adjustable Arch. Single Wheel Hoe, Cultivator, Plow and Rake, for "between-row" cultivation. Runs easily. High Arch Expansion Hoe a double and single wheel combined. Adjustable to any depth. All kinds of attachments.

New Universal Combination Drill The only implement made which can be used as seeder and cultivator 1 or 2 wheels as desired. Quickly changed.

All kinds of labor saving attachments.

All our implements are guaranteed made of best material, finely finished and have tough Oak bent handles and are recognized standards of America. Send for book describing this means of success in hand seed planting and cultivation FREE.

POPULAR PRICES TO EARLY PURCHASERS.
AMES PLOW COMPANY, BOSTON AND NEW YORK.

BUY A "BROWN" and you get the Best.

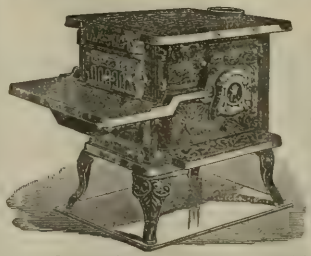
This steel lever harrow is known everywhere for its high quality in material, workmanship and durability. Don't allow the dealer to sell you anything for no other is so good. Write for FREE CATALOGUE.

They are made in a variety of convenient sizes
No. 9, two section, 50 teeth.
No. 7, two " 60 teeth.
No. 10, three " 75 teeth.
No. 8, two " 90 teeth.

Brown Mfg. Co., Dept, O., Zanesville, O.

CHAS. E. HUNTER, Agent, Richmond, Va.

The People Now Realize It.



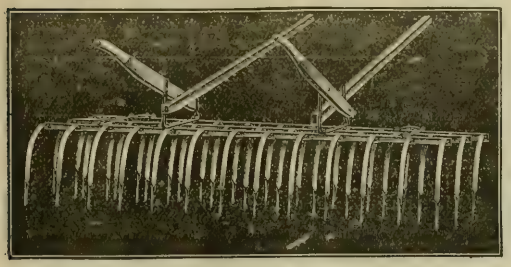
A little over a year ago we advertised that we would sell one stove of our make to anybody, as low as a dealer could buy a carload. Then, our trade was limited to Virginia and North Carolina; since we advertised this, we have shipped them to every State from New York to Florida, and as far west as Ohio—right in the heart of other stove manufacturers.

Nothing but praise comes from these States for their baking qualities and excellent finish. The celebrated FITZ LEE COOK STOVES are destined to be in more homes and more States than any other stove ever made. WRITE FOR INFORMATION.

SOUTHERN STOVE WORKS, 815 to 827 N. 17th St., Richmond, Va.

Hallock's SUCCESS Anti-Clog Weeder and Cultivator..

FARMERS,—Those who have used the modern cultivator declare they would not think of farming without one.



READ WHAT THEY SAY AND WRITE THEM.

RICHLANDS, N. C., Nov. 16. 1899.

I have simply this to say of your Weeder speaking from my o n experience: I cultivated forty-seven acres of peanuts with the Weeder, no hoeing or plowing; and the news has gone out that it is a success, and I know I am bound to sell many of them
I will write you again. H. W. HUMPHREY.

CARRSVILLE, VA., July 4,, 1899.

I have sold seventy (70) Weeders this season, and at least fifteen or twenty men have told me to c unt upon them for next year. I did not reach the one hundred mark, as I hoped to, but am in the field for it next season. Sixty-eight of the seventy men are enthusiastic in praise of the Weeder. The other two did not start their Weeders quite in time. I have had at least five men tell me if they could not get another they would not take $100 for theirs. I shall want more territory next year. Respectfully yours.
C. A. CUTCHINS.

EDGEFIELD, S. C., May 5, 1899.

GENTLEMEN,—If you remember I got one Anti-Clog Weeder from you last year. If you have not given the agency to any one else, I would like to have it. I have tried my Weeder on oats, wheat, corn and cotton, and I can truthfully say that I have never yet seen anything carried in a field that I would exchange for it.

I bought me a two-horse cultivator from the New American Harrow Co. last year, gave $45 for it. I have laid it aside; the Anti-Clog Weeder takes its place and takes the place of them all. Every body that passes and sees the Weeder work is puzzled to know why it does its work so complete and does not damage the corn and cotton. My neighbor wants one. Please send one to Edgefield, S. C., quick.
Yours truly. J. T. McMANUS.

WISEVILLE, VA., August 30, 1899.

We like the Weeder we bought of you last spring very much, though this has been a bad season on account of so many packing rains. Did not have to use the hoe in our potato crop once. Hope I may be able to sell some Weeders next season for you. Send me a few circulars. How about your Potato Digger?
Yours very respectfully, G. W. MOORE.

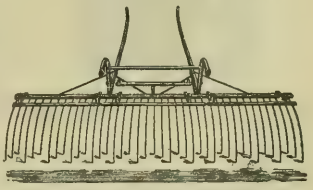
CAN YOU AFFORD TO BE WITHOUT ONE

WE DO NOT give away the first one to introduce the valuable Cultivator, but we do sell at a VERY LOW price. Write for the SPECIAL PRICE NOW.

D. Y. HALLOCK & SONS, Box 829, YORK, PA.

SPRING SPECIALTIES FOR THE FARM.





CORN PLANTERS—The SPANGLER for Corn in hills or drilled, Peas, Sorghum and Fertilizer; KEYSTONE with or without Fertilizer Attachment; EUREKA Planter.

WEEDERS—Teeth adjustable to different heights; works two rows at once.

HARROWS—DISC with Roller Bearings; LEVER All-Steel, Straight or Slanting Tooth.

FERTILIZER DISTRIBUTER—For all crops.

CULTIVATORS—DISC Cultivator and Harrow; ALL-STEEL Three and Four-Tooth; PLANET Jr. and IRON AGE Cultivators and Horse Hoes.





The Celebrated **DEERING HARVESTING MACHINERY—Mowers, Binders and Corn Harvesters,** with Ball and Roller Bearings. The lightest draft machines in use. Simple, strong, and on most liberal terms and prices.

HAY RAKES—Hand and Self Dump.

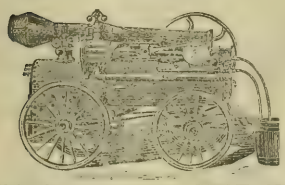
CIDER MILLS with Wood Crushing Rollers.

FEED and ENSILAGE CUTTERS—All Sizes for Hand or Power, with or without Stalk Crusher.

PLOWS and REPAIRS of all kinds.

BALING PRESSES for Hand or Power.

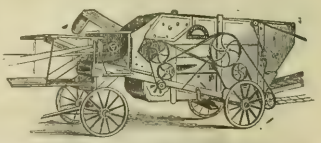
PEERLESS Engines and GEISER Threshers and Saw Mills. A large variety of machines and repairs carried in stock.



WOOD and POLE SAWS for Horse or Steam Power.

CORN and FEED MILLS—All Sizes.

The Original Disc Plow—THE HANCOCK, for two or three horses. 50 per cent. less draft than any other. Guaranteed to give satisfaction.



Farm, Freight and Log WAGONS—Thimble Skein and Steel Axle.

BUGGIES, SURREYS, ROAD CARTS, ROAD WAGONS and HARNESS.

IMPLEMENTS, MACHINE Y and VEHICLES for all purposes.

Write for Catalogue.

THE WATT PLOW CO., Franklin and 15th Sts. ,RICHMOND, VA.

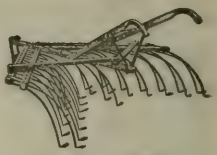
KEYSTONE ADJUSTABLE WEEDER AND SHALLOW CULTIVATOR...



NARROWED TO 30 IN.

"Light surface cultivation is all that will be required for most crops, and prevent the disturbing and breaking off of any root, which is usually done with an ordinary cultivator."

H. J. ATTERSON, DIRECTOR,
Maryland Agricultural Experiment Station.



EXPANDED TO 7½ FT.

POINTS OF SUPERIORITY OVER A STRAIGHT FRAME WEEDER.

It is adjustable both as to depth and width. Can be narrowed to 30 inches and expanded to 7½ feet. When narrowed up to 30 inches it can be used between the rows, working close to the plants—**long after straight frame weeders are set aside.** Being A shaped, it is not only stronger, but adapts itself much better to uneven surface than a straight frame weeder. It has no shafts, therefore no horse motion, and will not jump. Teeth are strong and pliable and have blunt points, which is important when working sensitive plants.

KEYSTONE FARM MACHINE CO., Ltd., York, Pa.





10 styles of **CORN PLANTERS**, all arranged so that the operator can always see the corn dropping.

12 styles of **CULTIVATORS**, with all latest improvements.



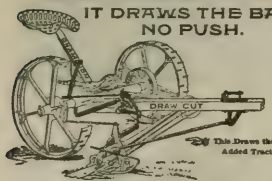
20 styles of **CORN SHELLERS**, also **HARROWS, FIELD ROLLERS, FEED-CUTTERS, Etc.**

WRITE FOR DESCRIPTIVE CIRCULARS AND SAVE MONEY.

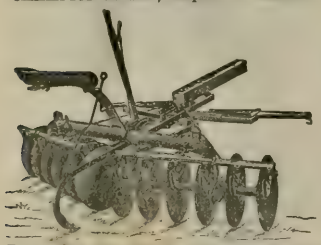


BEMENT DISC CULTIVATOR.

IT DRAWS THE BAR—NO PUSH.



THE WHEELS WILL NOT LIFT FROM THE GROUND.
CHAMPION Mowers, Reapers and Binders.



The TIGER All-Metal Disc Harrows with one and two levers. Prices and catalogues furnished of all implements.

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When my dear old grandmother used to say, "Child, there are two requisites in good housekeeping which are imperative—one is to have a good laundress, or to know how yourself so as to instruct one—and to buy and keep on hand good table linens. The table is the most important in a well kept home, and to keep it attractive you must have well laundered table linens."

She impressed this upon her granddaughters, and as I grow older and more contemplative, I agree with her. The table linens and the laundering of them are two important things. It is true economy in the end to buy a good quality. They will retain their softness and gloss until old and wornout.

The proper way to wash table linens is to use tepid water, with a little borax in it, and enough pure white soap to make a good lather. Very little rubbing is needed when you use borax, for it both whitens and softens the linen and makes the washing easy.

My grandmother was a noted housekeeper, and she did not think table linens were properly laundered without borax was dissolved in the water. She washed them in it, and rinsed and hung them in the shade to dry; sometimes laid them on the grass.

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S. H.

The attempt of the Government to induce the adoption of conservative methods of lumbering in order to preserve the national resources, and the responsive interest taken by timber owners, have brought up many interesting legal questions, and the Division of Forestry has found it necessary to make extensive researches in this direction. As the result, a circular dealing with the laws which affect forests is in course of preparation, and will be sent free to persons interested. One of the most important points brought out is the recognition by law of the prospective value of growing timber. The possibility of profitably carrying on lumbering with systematic provision for future cutting depends upon this point. It has usually been held that when, by trespass, or by unscrupulous cutting by contractors, timber has been removed contrary to the owner's wish, he could recover only its stumpage value. As forestry usually requires that a certain number of trees of certain size be left, it follows that an unscrupulous contractor could easily upset the plans of years with little fear of punishment. The Supreme Court, however, has recently ruled that the difference in value between logged and unlogged land depends not only on the value of the timber removed, but on its probable increase had it been left untouched.

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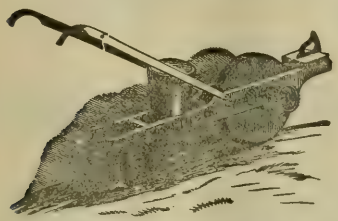
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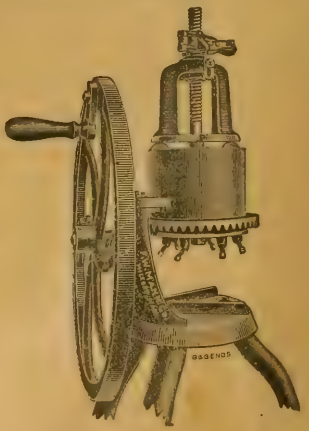
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Vol. 61. APRIL, 1900. No. 4.

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The Southern Planter.

DEVOTED TO

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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, April, 1900. No. 4.

Farm Management.

WORK FOR THE MONTH.

The month of March has not been one in which much progress could be made with work on the farm. The frequent showers and cold unseasonable weather have kept the land unfit for the plow, and there has been a marked absence of those drying winds for which the month is proverbial. A peck of March dust is said to be worth a king's ransom. This year it has been scarce enough to make it a very high ransom. It is to be hoped that the closing days of the month, and the month to be entered on, may be more seasonable, or the work of fitting the land for the staple crops is likely to be much delayed and a full crop be difficult to get planted. The alternate freezing and thawing throughout the winter has been very injurious to both wheat and winter oats, and we hear of much complaint of fields being ruined. This is not confined to the South, but appears to be very general throughout the whole country. The result will be that much extra work will be thrown on both teams and hands in the effort to make good the damage done, by the replowing and planting of other crops to take the place of wheat and oats killed. We would advise that too great haste be not made to plow up apparently injured crops, but they be given time to recuperate. We have seen both wheat and oats tiller out wonderfully in a week or twos' seasonable weather in April. If, after waiting, it is seen that the crop is not likely to be worth saving, then plow down and plant to corn or some fodder crop. There will be ample time to do this after other land has been got ready for corn. We are anxious to see a large area of land got into crop this year, as we believe it is going to be worth the while of every farmer to make all the crop possible. The country is more prosperous to day than ever before in its history. The laboring classes are better employed and at better wages. Both the home and foreign demand for our products is greater than ever before, and the prices higher for all farm staples and products than for a decade past. Whilst manufactures and other industries have increased in volume more than 50 per cent. since 1890, gross incomes and net profits thereon are probably larger than ever, and population has increased over 25 per cent., agricultural production shows relatively no such increase. Cereals, for the past three years, show an increase of barely 10 per cent., compared with a like period ten years ago. The total number of live stock is barely 5 per cent. greater now. All this goes to indicate that there is likely to be an active demand at good prices for much larger quantities of farm products in the coming years than during the past decade. The number of mouths to feed and the power of these to buy food is likely to be much greater than ever before. We want the farmers of the South especially to be in a position to secure their share of this increased prosperity by having not only ample provision for their own needs, but a large surplus for sale. The South itself is in a better position to buy than ever before. The increase in the price of cotton has put millions

into the hands of Southern farmers and Southern laborers, and as they have much leeway to make up, they are likely to be liberal buyers. They are going to buy more corn, more meat of all kinds, more vegetables and more fruit than ever in the past, and we want to see our own people and our own farms supply these needs. In the cotton sections there is every indication that a larger cotton crop than ever before is going to be planted. This will mean that in other sections more corn ought to be planted to supply the needs of the cotton planters. They cannot raise both an enormous cotton crop and a large corn crop, and though we may regret that they will make the cotton whether they make the corn or not, we cannot alter the fact. It is apparently Southern human nature to do so.

After the oat crop has been seeded (and we would urge that at this late season no great effort should be made to seed any large area, as it is doubtful whether the crop will be successful, and as at the best it is in the South mainly a fodder crop, which can be supplied by other crops of greater feeding capacity and better adapted for production in the South), attention should be given to the preparation of the land for the corn crop. The best land for the production of corn is a rich deep sandy loam, like our river bottoms, but any good sound land, well filled with decayed vegetable matter (humus), will produce a good corn crop. A soil which will hold moisture is essential, as corn makes a rapid and succulent growth and must have moisture readily available. Humus is the great factor necessary to the retention of moisture in land, and therefore every effort should be made to select land rich in humus for the corn crop. A clover or grass sod makes an excellent preparation for the crop on high land; failing in this, a cowpea fallow is good. After the selection of the land, the next most important factor is *deep and thorough preparation* before the crop is planted. Every phenomenally great crop of corn of which we have any record, has been produced on land deeply broken and finely prepared before the seed was planted. If the land was not plowed deeply or plowed and subsoiled in the fall, it should not now be plowed so deeply as to turn more than an inch or two of the subsoil onto the surface. It is too late now for this subsoil to become sufficiently ærated for its plant food to become available for this year's crop. The subsoil should be broken with a subsoil plow or coulter, and be left in the bottom of the furrow. On well drained land we prefer to plant on the level rather than on beds, and especially would we avoid narrow high beds unless the land was very liable to flooding. Bedding has the fault of the old system of planting in hills or plowing heavy furrows to the rows. It tends to rob the plant of that moisture which is so essential to the success of the crop by exposing more of the surface to the drying action of the wind and sun. As soon after plowing as the land will work, put on the harrow and keep it going until the finest and deepest seed bed possible is made. After the seed is planted, a plow should never again be taken into the corn field until after the crop is harvested. The seed bed should be so deeply and perfectly broken, and the surface, after planting, be kept so finely mulched with loose soil that no subsequent deep breaking, either with plow or cultivator, is needed. Such a preparation as this will do more to secure a heavy crop of corn than any fertilizer which can be applied. Upon this question of the best fertilizer to use to produce a heavy yield of corn we have letters every day. It is one to which it is impossible for us to reply with any certainty or definiteness. The character of the soil, and the state of fertility of each particular field must determine the fertilizer most needed for the crop. One thing is quite certain, the yield of the crop will be determined by the amount of that essential constituent for its production which is in *least abundance*, and this cannot be obviated by the presence in the soil of an over abundance of any other needed constituent, hence the importance of knowing whether your soil wants phosphoric acid, potash or nitrogen, which can only be determined by actual experiment. In a large series of experiments conducted over a large area of New York State by the Cornell Experiment Station for a period of three years, it was found that in only 40 cases out of 126 did a complete fertilizer, that is, one containing all the three elements of plant food—phosphoric acid, nitrogen and potash—give better results than fertilizers containing only one or two of the plant foods. This shows how easy and probable it is that one is throwing money away when buying and applying complete fertilizers. Where only one form of plant food was used, phosphoric acid gave the best results in the largest number of cases. The use of stable manure gave the best results. In nearly every experiment made in the use of fertilizers on the corn crop it has been found that heavy applications were not profitable. In Indiana a heavy dressing of fresh horse manure (7 tons to the acre) was not exhausted after 15 years of continuous corn culture. Probably for our Eastern and Southern Virginia, and North and South Carolina lands a fertilizer made up of two parts of high grade acid phosphate and one part tankage or cotton seed meal, would be as good as any. This should be applied broadcast at the rate of 300 or 400 pounds to the acre or, if put in the drill, should be spread widely over the row and mixed with the soil a week or ten days before planting. We, however, are strongly in favor of broadcast

fertilization, as the corn plant is a wide searcher for food, and soon meets its roots across the rows, and sends them to a great depth if the soil be properly worked.

Give from 3 feet to 3 feet 6 inches between the rows, and drop the seed from 18 inches to 2 feet a part in the rows. Land that will not make corn planted as close as this ought not to be planted in corn at all. Corn planted from the 1st to the 20th of May usually does best, but this largely depends upon climatic conditions. Do not plant too deep, from 2 to 3 inches is usually best. See that you plant good seed. It ought to have been selected from the field at harvest, and have been carefully stored away until this time. The bad stands, of which we hear so often, are largely caused by planting seed of which the germ has been injured. It is good policy to test your seed corn by soaking a little, and thus seeing whether the germ is vital. Cut worms are a prolific source of trouble and damage to the young corn plants, especially on river lands. Wherever danger is apprehended from them, make up some poison balls of bran and Paris green, moistened with water sweetened with molasses, and drop these over the field before other vegetation appears, or before the corn plants come up. The worms will eat this mixture and be poisoned. A pound of Paris green to 50 pounds of bran will be sufficient. Bunches of clover dipped in Paris green solution, and dropped over the field, are also effective in destroying the worms.

In our next month's issue, we will say something as to the cultivation of the crop. Here we will only say, let the first two cultivations be with the harrow. Harrow once before the corn-plants break through the soil, and twice afterwards. Do not be afraid of injuring the crop by this apparently rough usage. It will help it. We have harrowed corn six inches high, not only without injuring it, but with manifest advantage.

In the cotton sections of the South this month, and the next one, are going to be the scenes of great activity, as there will be, if the weather is seasonable, a greater acreage of cotton planted than ever before. The advance in price of the staple to nearly double the sum at which it sold last year, together with the fact that the visible supply of cotton all the world over is now smaller than for years past, whilst the manufacturer's demand is larger than ever, will undoubtedly stimulate the planting of every acre in cotton that can be got ready, and probably much land that ought not to be planted will be set out. We would urge that only such land as will produce at least a fair crop should be planted. It will pay better to produce a bale to the acre than to produce a bale on three acres. The object should be to reduce the cost of production, rather than to unduly increase the quantity produced. This can undoubtedly be most successfully done by the introduction of a better system of rotation of crops, under which peas shall be grown as often in the rotation as possible. We have urged this for several years, and believe not without success. More peas were grown in the cotton sections last year than ever before, and the result will be land in a better condition for producing cotton cheaply. The peas supply nitrogen and humus to the soil and feed for the stock, whilst the stock make manure, which, when composted with cotton seed, some acid phosphate and kainit, makes one of the best fertilizers for the crop. In an experiment made in South Carolina, barnyard manure was compared with cotton seed products and with a compost. The compost was mixed in the proportion of 600 lbs. each of barnyard manure, cotton-seed meal, and acid phosphate, and 200 lbs. of kainit. In computing the results, the lint was valued at 5 cents per pound, and the seed at $9 per ton. The money value of the increase per acre of lint and seed, with the application of the different manures, was as follows:

2,714 lbs. manure from cows fed on cotton-seed meal and hulls	$10 15
145 lbs. of cotton-seed meal and 500 lbs. of cotton-seed hulls per acre	2 73
2,960 lbs. per acre of manure from mule stables	5 93
5,425 lbs. per acre of manure from cow-barns	6 23
1,320 lbs. compost per acre	14 81
2,640 lbs. compost per acre	22 74

When acid phosphate was used at the rate of 192 lbs. per acre, in addition to the manure from mule stables, and at the rate of 292 lbs. per acre, with the other applications, the value of the increase over no fertilizer was as follows:

Manure from cows eating meal and hulls	$12 36
Cotton seed meal and hulls	10 64
Manure from mule stables	10 12
Manure from cow barn	13 65

In Alabama, the use of acid phosphate, when only one kind of fertilizer is applied, has been found most effective, but an application of 200 lbs. of cotton-seed meal, 240 lbs. of acid phosphate, and 100 lbs. of kainit per acre gave the best financial results. Wherever rust is likely to be at all prevalent, kainit should be used liberally.

In another column will be found matter dealing with the tobacco crop.

Whilst it is too early to sow sugar beets or Mangold Wurtzel beets, except south of Virginia, it is not too

early to get the land ready for the crops. We learn that it is the intention of many farmers in Northern Virginia to experiment in raising sugar beets for a sugar factory to be established at or near Fredericksburg. We would urge on them that they make good preparation for the crop. The land must be deeply broken, finely pulverized and richly fertilized with special fertilizers to make the experiment a success. We have grown beets, and know from experience what an exacting crop it is from the day the land is begun to be got ready until the time when the crop is harvested. We hope the experiment may succeed, and that the sugar content of the beets will be sufficient to warrant a wide extension of the cultivation of the crop. Such an extension would result in great advantages outside the mere production of sugar in the State. It would mean more live stock and a better system of rotation of crops with consequent improvement in the land. The seed should be planted as early in May as can safely be done for frost. The young plants are tender, and a slight frost will cut them off.

In laying out the land for the various crops, do not overlook the forage and fodder crops. We desire to see a larger area of these grown, and next month will say something on the various fodder and forage plants which we can produce so successfully in the South.

THE TOBACCO CROP.

The indications are that in consequence of the high price of cotton the crop of bright tobacco will be largely curtailed. This should have the effect of raising the price of this product, as the demand is large and not likely to be reduced during a period of such general prosperity as this country and England is now enjoying. This being so it would seem to be the opportunity for those who still intend to make this staple to plant out a large crop, and to make it good. We would, however, urge that not more be planted than can be well fertilized and attended to. The production of bright tobacco is perhaps more dependent on the peculiar fitness of the soil on which it is grown than upon any particular system of fertilization. Unless the soil be adapted to the crop, no system of fertilization will make a desirable crop. Land full of vegetable matter, especially if that matter be in only a partially decomposed condition, and be lacking in sweetness, can never be made to produce a high type of bright tobacco. Phosphoric acid at the rate of 100 pounds to the acre, supplied by high-grade acid phosphate, and potash supplied by cotton-seed hull ashes or double sulphate of potash applied at the rate of 600 or 700 pounds to the acre with cotton-seed meal to supply the nitrogen at the rate of 1,200 or 1,500 pounds to the acre would seem, from a consideration of the experiments made in various places, to be the most desirable form of fertilizers to use.

Dark heavy shipping tobacco has continued to sell well, and seems likely to continue to do so. There is, therefore, every inducement to make the crop. It is, however, essential that it should be made good, and be cured to meet the requirements of the market. A soil rich in veg table matter, such as a decayed clover or pea sod, is one most suitable for this type of tobacco. It calls for a heavy supply of nitrogen and potash, but only for a medium quantity of phosphoric acid. The nitrogen should, as far as possible, be from an organic source, and the potash be in the form of a sulphate. Major Ragland, one of the best authorities on the crop, got the best results in six different experiments from the use of dried blood as the source of nitrogen, sulphate of potash for the potash, and acid phosphate to supply the phosphoric acid. He applied 160 pounds of dried blood, 120 pounds of sulphate of potash, and 114 pounds of acid phosphate to the acre, and such a dressing as this applied on a clover or pea fallow would probably be found sufficient. If not planted on a clover or pea fallow, we advise the use of 100 pounds of nitrate of soda in addition.

GRASS GROWING.

Although it is now getting late to seed grass, yet we are aware that from delay caused by the wet weather in March much land is yet unsown that was intended to be seeded. Whilst we do not advise so late seeding as April, yet there may be cases where it may be so important to endeavor to secure a stand of grass that even sowing in April may be justified. In such a case it is essential that only those varieties should be sown which have shewn themselves resistant to drouth and hot weather. Amongst the best of these will be found orchard grass, English blue grass, and *Bromus inermis* (Hungarian brome grass). The Kansas Experiment Station, which is situated 118 miles west of Kansas City, and is on upland, has been experimenting with grasses since 1873, and has tested nearly all known kinds, says that in that hot and frequent drouth-visited section it can only recommend two grasses—orchard grass and English blue grass. Orchard grass has been grown there since 1875, in large fields, and has successfully withstood all drouth, floods, heat and cold since that date except the winter of 1885–'86. English blue grass has been grown there since 1879, and has withstood all extremes of climate, except the winter of 1885–'86. The Station sows a mixture of 20 lbs. of orchard grass and 15 lbs. of blue grass to the acre, and if the season is favorable, 2 to 3 lbs. of red

clover, and sows *without any other crop. Bromus inermis* has been grown experimentally for nine years on the Station farm, and has withstood the severest drouths and cold during this time. It forms a thick sod, starts early and grows late. We think it may be now added to the list of those grasses that are drouth-resisting. It has been tried in a number of places in this State, and promises well. If grass is to be seeded this spring, do not delay a day longer than is absolutely necessary in order that the land may be well prepared, and if this cannot be done before the middle of the month, do not sow grass, but plant in cow peas or soy beans in May and cut the crop for hay and sow grass in the fall. In this way a good forage crop can be grown and a stand of grass be secured, which, in all probability, will be much more satisfactory than one sown in the late spring.

HAVE WE ANY WORN-OUT SOILS?

Editor Southern Planter:

It is common to hear the remark that the Southern soils are worn out. The Northern man travelling through the South sees the "old fields" and the broomsedge and pines taking possession where crops were once grown, and at once jumps to the conclusion that tobacco and cotton are bad crops to cultivate, for they have worn out the soil of the South. Nothing could be more superficial. The broomsedge and the pines are nature's great restoratives. They add nothing to the soil but what they get from the air and the soil, and any plant can get food from the air. But the simple growth of the pines and the broomsedge restores to the soil in time about as much productiveness as it had before, and then some one clears the land again and goes to work to again exhaust it. The fact is that in most cases it has not been exhausted at all. The really worn-out soils are those that had little at the start to wear out—the deep sandy soils which are absolutely barren as soon as the little accumulation of humus is used up. But the soils with a good clay below are all over the South. The deep red clay of the Southern Piedmont region is the result of the decomposition of feldspathic rocks, and is of the same character all the way down to the fast rock. The scratching of the little one mule plow may have made the immediate surface unproductive. But the long tap root of the pine runs down into the unused clay and brings, year after year, some of its unexhausted mineral matter to the surface, and deposits it in the decaying leaves with which it carpets the ground, and as the years go by the worn-out surface is again as fertile as ever. There has been none of the fertilizer mixer's stuff used to effect this restoration. The unaided forces of nature have quietly done the work, and the cleared pine woods is again new ground for the thoughtless man to despoil until the process has to be repeated.

Can we not study nature's work and strive to imitate it in a more rapid and effective manner. The practice of the past has been simply to *plant* and *use up*. The modern man must be a farmer or perish. Tobacco and cotton have not been the cause of the unproductive condition of our lands. Any other money crops treated in the same way would have exhausted the surface soil just as effectively as tobacco or cotton—in fact, more rapidly than cotton. And yet Northern men coming South into the cotton country seldom want to plant cotton. They are full of the idea of truck and fruits and crops like they have been used to in the North. Now it is seldom wise for a man coming into a country to ignore what has long been the money crop of that section. There lies at the foundation a good reason for that having grown into the money crop for that particular region, and the new-comer will be wise to accept what he finds, and then go to work and see if he cannot produce that money crop in a better way than it has been grown.

I am fully persuaded, after a good deal of experience, that about the most inexhaustible soil in this country is the so-called worn out red clay hills of the South. I am satisfied that this red clay has in it an inexhaustible store of mineral matters, and that the fact that these mineral matters are in such a form as to be very slowly available is part of the wise plan of the Creator to prevent their ever becoming really worn out. The rapidity with which these red hills respond to good culture, even when no fertilizer is applied, is a surprise to those who endeavor to improve them. All over the South to day we can see men going over and around these hills with a little plow and a single mule, and growing a crop of corn or cotton that hardly pays wages for man and mule, while all the time right below the point of that little plow lies a mine of fertility waiting for some one with sense enough to get it. In the present unproductive state of the surface, it may be well to use some mineral matter at the start in the improvement of such land. But I verily believe it is possible and practicable to bring these lands to the highest state of productiveness without the use of any artificial fertilizer after we once get a good growth of peas on the soil, and have loosened up the clay so that the roots of the legumes can get in and, like the pine roots, bring up to the surface the store of food long buried out of reach. Fall plowing and deep subsoiling are the means for effecting this improvement. Not fall plowing simply, for if that is all you are going to do, it would be far better to leave the land unbroken till spring, for bare plowed land is the worst thing a

farmer in the Southern uplands can have. But fall is the only time when the subsoiling can be done to the best advantage. Then protect the soil from the winter rains by some green crop, even if nothing but rye.

Having gotten thus far, and prepared a deep bed for the roots, you can see the next spring what the cow pea will do on that land, and where hardly anything grew before, you can get a crop of food for cattle that will enable you to raise manure to return to the old field that produced it. Then another winter cover of rye or crimson clover and rye, and you have something to turn under for a corn crop, and a place where lime will do some good in releasing the potash in the soil and promote the nitrification of the organic matter so that the corn roots can get it. By this time you will find that the old field that would hardly grow corn enough to feed the mule that plowed it is getting to grow already a rather decent crop, especially if the manure made from feeding the peas has been returned to it during the winter. Now put the land in rye again, and this time harvest the grain and at once sow the land in peas again, mow for hay and follow by another winter cover, and then cotton or corn again. This constant recurrence to the legume and other organic matter will soon tell in the mechanical character of the soil. It will become darker and be coming nearer to the new ground conditions produced by the pines after long years, and if a short rotation with frequent doses of peas is kept up the land will gradually be brought to a high condition of fertility, and nothing put on it but what was produced thereon. True this is not in the present state of our agriculture the most speedy and business like way. Better help the land artificially till able to stand alone. But what I want to impress is the fact that there is not the necessity for this everlasting buying of a complete fertilizer for every crop we plant. It is the burden of nine-tenths of the letters I get from farmers—"What fertilizer mixture shall I use for this and that crop and how much per acre, and how much will it take to make fifty bushels of corn on land that now makes twenty-five bushels per acre?" It is this endless speculating on the chances with purchased fertilizers that I am opposed to, and not to the rational use of fertilizers in starting the development of the soil. If your land is exhausted and unproductive, go down and hunt for the fertility below. It is there, for I have found it more than once W. F. MASSEY.

TOP-DRESSING MEADOWS.

An acre of grass land in New Hampshire, dressed in the spring with 100 pounds of nitrate of soda, 100 pounds of dissolved bone black, and 50 pounds of muriate of potash, yielded the first season 900 pounds of hay more than an untreated plat, and the second season 820 pounds more.

ARTICHOKES.

Editor Southern Planter:

After growing and feeding artichokes each year since 1895, when we first tried them, I can frankly say our experience with them has been most gratifying. It was with a good deal of solicitude that we introduced them as a crop, for we had the idea that many farmers entertain, that if artichokes once got a root-hold it would be very difficult to free the land of them. So when we first planted them we made up our minds to put up a pretty hard fight if they showed the persistency they are commonly credited with having. But we found it an easy matter to entirely eradicate them.

Only last spring, wishing to put seven acres that had been in artichokes in other crops, three acres were plowed early in the spring and sowed with oats and Canada peas. As was expected, a great many artichokes came up, and together with the oats and peas made a heavy crop. The cows were turned in the lot as soon as the oats headed out, and ate the oats, peas and artichokes with equal relish. Later, when the artichokes made a second growth, the cows were turned on them again. Early in August the land was plowed, using a chain on the plow, and on August 21st was sowed in crimson clover, which is a good stand and without an artichoke in it. Some small pigs and sows ran in the remaining four acres, receiving no other food but the artichokes until May 10th, when the tubers alone ceased to furnish sufficient nutriment. In June the tops were plowed under and the land was sowed in cow peas. No artichokes appeared. The land is entirely free of them. The whole secret lies in plowing the land after the old tubers have been exhausted of their vitality and before new ones have formed. This period extends over five or six weeks. But I started to tell of the advantages in growing artichokes, not killing them.

They can be planted whenever it is most convenient, from fall till the middle of April, and are very easy things to grow—like most other crops, making the greater yields on the best land. On land that would not make more than thirty bushels of corn per acre we have had more than four hundred bushels of artichokes. Four hundred bushels is not a great yield. Last year the *Southern Planter* contained some remarks by the writer about artichokes, which induced a number of farmers in Virginia to try them. One gentleman who planted several acres writes that they are turning out over nine hundred bushels an acre. He says: "I am turning my hogs on the artichokes; they are simply immense. They are the only things which will touch the sides of the Virginia 'rail-splitter.' And how cheap they are. It comes near getting

something for nothing. Every living thing likes them, from chickens to horses. They have a greater feeding value than I had supposed—greater than any other root I feel sure per pound, and much greater per acre. I wish I had more of them."

A yield of four hundred bushels an acre is equivalent to one hundred bushels of corn, but that is not a basis upon which to compare the value of the two foods. Corn is too concentrated and heating to form the bulk of the feed for the growing pig. If fed on artichokes the pig's stomach will be larger and all the organs healthier and more vigorous. We have had clear evidence that pigs will keep healthy and in good growing condition on artichokes alone from November till May, though we find it profitable to give as well a small allowance of grain feed. This winter we are giving about a quarter as much grain as the pigs would require if fed nothing else, and a more thrifty and healthy lot no one could wish for. The pregnant sows get nothing but artichokes. They keep in good condition and seem perfectly contented. The unlimited use of this juicy, sweet food, with the exercise necessary to obtain it, is conducive to vigorous young at birth. In raising her brood the sow ought to be fed freely with middlings or ship-stuff as well.

When swine are confined, the feeding of them twice or three times every day is quite a chore. With artichokes they feed themselves. There have been only nine days this winter so far, now February 20th, when the ground was too much frozen for the pigs to root out all they wanted.

Chesterfield Co., Va. ALBERT R. BELLWOOD.

SUCCESSFUL FARMING IN MISSISSIPPI.

Editor Southern Planter:

After finishing running up my 1899 cotton crop account to-day, I find some results which may interest some of your readers. Not that I claim any extraordinary farming at all, but as I have kept a strict itemized account of everything connected with this crop, I thought this part of it might be of interest to some one, for I know it is a rare thing that farmers can tell exactly what a crop has cost them at the end of the season. And especially is this so of the cotton crop.

I will state at the outset that some of the conditions were very adverse for one to obtain satisfactory results from a cotton crop. 1st. The spring was so dry that it was impossible to break and prepare the land as it should have been done. Failing to do this, there was a poor stand throughout the crop—10 acres did not come up at all until about the 20th of June. The season was actually too dry for the fertilizer, which was only 150 pounds per acre, to be properly taken up by the plant. Of course all this dry weather, poor stands and bad preparation of seed-bed, made it more difficult to cultivate to any advantage. But with all this, the plant grew off fairly well, and all the old cotton fruited to perfection until it stopped growing along in the last days of July.

I will give the results in as brief a manner as possible:

There was just 45 acres planted, and I gathered from it 30 bales, weighing, on an average, 481 pounds each. It was sold at prices ranging from 5½ cents up to 8 cents—about 10 bales at the latter price. The labor is valued at 50 cents per day for man and same for horse, which I think is about what it costs after feeding both. Land rent is at the regular price for this locality. The fertilizer cost $16 per ton; 150 pounds per acre was applied. Hoeing was done by the acre, costing 50 cents per acre each time, or one dollar per acre in all. All the work in preparing land, planting and cultivation will be given under one heading. I think every item of expense is accounted for except wear and tear of tools and the seed used. Here are the figures as they foot up:

Preparation, planting and cultivation	$138 00
Hoeing 45 acres twice, at 50 cts.	45 00
Picking	174 00
Hauling and ginning	94 00
Fertilizer, 150 lbs. per acre, at $16.	54 00
Rent on 45 acres, at $2.25	101 25
Total cost	$606 25

CREDITS.

14,430 lbs. lint cotton	$1003 90
28,000 lbs. seed, at $12 50 per ton.	175 00
Total proceeds	$1178 90
Net proceeds	$572 65

This makes the cotton cost me 4.2 cents per pound, and the average price received was just about 7 cents. The net profit on land was $12.72 per acre, which is good for land valued at $8.

Any one can readily see that raising cotton at these figures is a good business, and I believe *if we strive to make everything else consumed on the farm*, and all the cotton we can after this is done, we can always have our figures this way; but just as long as we hold to the all-cotton theory, as heretofore, nothing but some providential disaster to the crop will enable us to realize such results as we did last year. Unless all signs fail, we will very likely not realize such results this year, for there is at least 4 per cent. more acreage, and 75 per cent. more fertilizer sold in this section than there was last year.

Work is being pushed as rapidly as possible on the

farm, and every one seems to be working with a good will. With favorable weather from now on, crops will be at least three weeks ahead of last season.

A great number of our most progressive farmers have branched off to some extent into the stock business. All I think we need is to push this new industry, and procure good stock, and give them proper care, and we can become one of the foremost stock-raising sections of the country.

The recent freeze played havoc with the truck business in this State, but the general field crops were not damaged to any extent. Oats came through all right, and are now almost as green as before.

We have a very promising outlook here in Mississippi for a winter pasture from the Hairy Vetch. It has already proved a grand success in the northeastern portion of the State. We hope to get it established here in the Southern part. If we succeed, we can then have grazing for our stock twelve months in the year. W. B. MERCIER.

Centreville, Miss., March 6, 1900.

[This is one of those cheering indications we get now a days of the results of our labors for years past in urging on Southern farmers the adoption of a sound system of agriculture, with live stock as an important adjunct. The farmers are taking hold at last. We congratulate our correspondent on his success, and on the sound principles he enunciates.—ED.]

PEANUT GROWING.

"In the last number of the *Southern Planter*, Prof. Massey combs the hair of the 'Country editor' for daring to criticize his advice to A. N. Cocks in the February *Planter*, in which he asserted that the sulphate of lime in superphosphates would take the place of carbonate of lime.

As he has apparently abandoned this point in this month's *Planter*, we have no more quarrel with him on that score.

He has thrown up new works this month as follows: 'But the notion that I have been trying to combat is the impression that lime is a direct fertilizer for the peanut crop;' and further, 'It has gotten to be a maxim among peanut growers that peanuts cannot be grown without lime, no matter what the condition of the soil.' Well! Well! One must go away from home to hear the news. We have lived in the peanut belt thirteen years, and never knew before that lime was applied to peanuts as a direct plant food, nor that a crop of peanuts could not be raised without lime, unless the soil was new or sour. The Professor evidently thinks we apply lime every year instead of once in eight or ten years, and is sowing his advice in the dark.

Personally, we believe lime is, to some extent, a direct plant food, and we have come to this conclusion by raising peanuts in the field and not in thumb pots; but our knowledge of peanuts comes not so much from our own experience as that of those ignorant, non-progressive, never-experimenting peanut growers who know more about growing peanuts than both of us scribblers put together.

When a farmer, finding his peanuts popping in a certain field, applies lime and gets sound plump peas, he needs no better proof that lime does good, and when some college professor tells him phosphate, which he has been using all the time, would have done as well, he is apt to have a very poor opinion of both the advice and advisor.

Professor Massey, before you write again for the edification of the peanut growers, suppose you study the conditions; use a microscope instead of a telescope.

The 'Country editor' may not, and is not supposed to know as much as the college professor, but he gets close to the people, and when he does give advice, it is liable to be specific and pat, and not fired at long range and a high elevation.

We have read your articles for a good many years, and have usually sworn by, seldom at your conclusions, but until you give us the data for your conclusions, we shall decline to follow your advice on peanut growing. How cultivated, planted, fertilized, grade and yield of peas, proportion sappy or poppy peas, kind of soil. Give us all the data, Professor; it may help our friend E. T. Birdsong, who does not believe in book-farming, to get more than 1,400 bushels of peanuts on ten acres of land. The peanut growers eagerly await your data, Professor; it would be terrible to disappoint them."—*Sussex Standard.*

The editor of the *Sussex Standard* is after me again, and grows very facetious in his criticism of the "College Professor." Fortunately, this college professor is as much of a farmer as he is a professor, and hence the criticism does not hurt much. Our friend seems to suppose that only in his section are peanuts grown, and advises me to study them at close range. As this is just what I have been doing for years and have been observing the practices of peanut growers in another section where peanuts are largely grown, the advice is simply superfluous. True, I know nothing of what the Sussex growers are doing, but there are other people growing peanuts besides those our editor is acquainted with. I never advised Mr. Cocks that plaster and superphosphate would take the place of lime, but only that under his conditions he did not need the lime. Now, whether the planters of Sussex apply lime every year or not, is not what I was hitting at. I do know that there are peanut growers who imagine they must lime every crop, and if the Sussex growers have gotten into a wiser use of lime, I am glad to know it. Our friend intimates that the country editor gets closer to the farmers than the college professor. Perhaps some of them do, but if there is a man anywhere who has gotten closer to the farming community than I have, I cannot tell where he is. I am in direct correspondence with the tillers of the soil not only here, but all over the United States, Canada, the Islands of the Sea, and far off Australia and New Zealand. They write me fully ten thousand letters annually, and I try to keep in touch with them, not only by answering

their letters in the press, but write personal letters to the extent of 4,000 to 5,000 annually, while at the same time I am questioning the soil itself in regard to all the questions that come up. Our wise editor talks with the farmers around him, while I meet the farmers of four States at times in farmers' institutes, and study their conditions under various climates, and ask them questions and am asked questions, till I believe that I get as near to the farmers of this country as any living man. When the editor can point to a letter where I have said that sulphate of lime or acid phosphate could take the place of lime in the cultivation of the soil, it would be time for him to criticize me. That a leguminous crop will not thrive in an acid soil, I have taught year after year, and have endeavored to show that nearly all the clover sickness complained of is caused by acidity in the soil that prevented the thriving of the nitrogen-catching microbes that are so important to the success of the legumes. Doubtless, as our editor says, lime is, to some extent, essential as plant food. But there is hardly a cultivated soil that does not already contain enough lime for this purpose, and the addition of lime in a freshly slaked state is of use principally as a re agent in bringing matters other wise unavailable into use. As we have grown all our experimental fields of peanuts in the open field, the slur about growing them in thumb pots is perfectly gratuitous. I have grown them under the same conditions that confront the commercial grower, and have studied their needs from every fertilizer standpoint. I am glad to know that you have in Mr. Birdsong a progressive farmer, who raises large crops of peanuts. Perhaps he does not need advice, but there are thousands who do not grow 140 bushels per acre, and if I can help one of these men to farm better, I will have done what I am striving to do—to elevate the farming of every class of growers. The Saviour said that "He came not to call the righteous, but sinners to repentance." I am not after the men who "know it all," but those who need and want to learn. If our editor has learned all there is to learn about peanuts or any other crops, he knows far more than I do, and he must excuse me if I keep on endeavoring to find out more. Perhaps the editorial room of a country newspaper is a better place to learn plant life than in the field, but I rather prefer the field. As I am using twenty-five acres of land annually for no other purpose than study and experiment with crops of various kinds, I simply endeavor to tell what I find out in the field. I might learn faster with a newspaper office in the peanut country, but I prefer the field.

W. F. MASSEY.

Mention the *Planter* to your friends.

CULTURE OF IRISH POTATOES.

Editor Southern Planter:

A well rotted clover sod is considered best for potatoes. A pea sod is doubtless also good. In either case the soil at seeding time should be properly fertilized with a view of producing a rank growth of clover or peas, as the case may be.

From actual experience, I differ from most writers on the subject as to the proper distance for planting. I believe that drills three feet apart and single plants eighteen inches in the drill are close enough, and especially if the soil be properly fertilized. Distance, under proper conditions, will, invariably, increase the quantity and quality of the potatoes. From seven single stalks, where they had good distance, I have grown a half bushel of potatoes, but these were what are known as fall potatoes, the seed having been planted about the 20th of June, and were also properly mulched with a good coating of oak leaves.

It has been found that potatoes thrive best in a temperature of about 80 degrees. Now, by planting in mid summer and mulching, we approximate the proper temperature in the early fall months, and for this reason fall potatoes will, in the South, largely excel in quantity and quality those planted in early spring, but for market potatoes the latter may be most profitable.

As regards seed, any reliable seedsman can furnish second crop potatoes that will not sprout to injure them before the time for late planting arrives. After you grow one crop you are all right, as the June planting, if properly cared for, will not sprout before the time for next June planting arrives I believe that seed from a previous June planting will answer better than second crop potatoes, but some experimenting may be necessary to decide this point.

By reason of danger from late frost, it may be better to defer mulching the spring planted potatoes until the danger of frost has passed. In this case it will be well to give the potatoes a good working immediately preceding the mulching.

When planted in June, the mulch may follow the planting.

Where potatoes are to be mulched, I prefer to plant them shallow on a well pulverized soil.

I wish to emphasize the necessity for thinning to one stalk. Whether tested on early or late planted, I have never known it to fail to materially increase the size and quantity of the potatoes. A seeming waste of surplus stalks may have prevented the adoption of the plan, but if one stalk will produce more potatoes than three or four, it is really economy to pull up and throw away the surplus stalks. But I have found, by an actual test, that the sprouts pulled off can be ad-

vantageously set out and produce fine potatoes, but I did not make a comparison in quantity between them and the original plants. Some writers recommend bedding the potatoes and drawing the sprouts after the manner of sweet potatoes. When the potatoes are not planted on a clover or pea sod, it is necessary to use fertilizers. A well balanced mixture should contain about 3 per cent. of nitrogen, 6 per cent. phosphoric acid, and 8 per cent. potash, of which from 700 to 1,000 lbs. per acre ought to be applied. Instead of the above, a mixture of 200 to 250 lbs. of acid phosphate, 200 to 250 lbs. sulphate of potash, and 250 to 300 lbs. of cotton-seed meal per acre can be substituted. In any case, the fertilizer ought to be well mixed with the soil before planting time.

Moore Co., N. C. BRYAN TYSON.

HOW SHALL WE DETERMINE WHAT OUR SOIL REQUIRES IN A FERTILIZER?

Editor Southern Planter:

In setting out to answer this most important question, there are several points which must be taken into consideration. First, the character of the soil; second, its previous treatment; third, what the crops demonstrate, which are or have been growing on the land; and fourth, what the crops require which we intend to grow.

No chemical analysis of the soil can be depended upon to tell us what element of plant food is most necessary to make our land productive. For the element least in evidence may be the most available, and the element which the analysis shows our soil to contain the most of, may be so locked up and insoluble that the plants are able to obtain only a small portion of it. The most practical way is to go to the field with our question, and seek the answer from soil and plant.

Of course, the surest way to get at this matter is through a series of experiments where the different elements of plant food are applied separately and together in different combinations to different small plots of ground.

I am aware, however, that most farmers will not take the trouble to experiment in this way; also that the land varies so greatly on most farms that one set of experiments could not be made to apply to the whole place.

Taking up, first, the character of the soil. For eight years the writer cultivated an orange grove and peach orchard together with vegetables on sandy land in Florida, and we found that the quantity and quality of our fruit was increased and improved more by a liberal application of potash—using it principally in the form of sulphate—than from any other element of plant food; although phosphoric acid was also necessary to make good, firm wood, and nitrogen to stimulate growth in the spring. On our Georgia farm, we have almost every variety of soil from stiff red clay to light sandy bottom land, and we find that the rule holds good here also, and an increased use of potash is necessary on the sandy and bottom land, while our red clay uplands seem fairly well supplied with this element, and only a moderate quantity is necessary in a fertilizer. Here, an increased use of phosphoric acid and nitrogen gave the best results.

The previous treatment of the soil is also very important in forming a correct decision as to what our land requires in a fertilizer. Lands which have been subject to continuous clean culture for many years, like most of the cotton lands of the South, are very deficient in organic matter, and consequently are lacking in nitrogen. They may contain large quantities of the other elements of plant food, but these have become mostly insoluble for want of the decaying vegetable matter which helps to make them available. The first thing necessary on such lands is to supply humus by some means, preferably by growing and turning under cowpeas.

On the other hand, if the soil be filled with organic matter from applications of stable manure, or otherwise, we may judge, that such soil is fairly well supplied, unless the plants tell us otherwise, with all the elements of plant food. Here we should use an evenly balanced fertilizer, and use it heavily, on some good money crop. For, strange as it may seem, the richer the land, the better it will pay to use heavy applications of commercial fertilizers, especially if the crop to be grown be vegetables or berries.

We can tell pretty correctly the needs of our soil by noting the appearance and yield of growing crops; especially with small grain, like wheat or oats. If the plants come up with a good, dark green color, and grow off vigorously, we may know that our soil contains a good supply of nitrogen. If they look yellow and sickly, it shows this element of plant food is lacking.

Cow peas and clover will do well with a small amount of nitrogen, as they can procure it from the atmosphere. And where they refuse to flourish, potash is needed. If our cotton makes a great deal of weed, with but little fruit, we may know that the supply of phosphoric acid in our soil is short. The same is also true where wheat or corn makes fine straw and stalk with but little grain. Where our Irish potatoes are few in number, and watery in character, while they have good tops, potash is deficient. Also where our turnips are mostly top with little root, the same is the case.

Bearing these facts in mind, with close observation, we may arrive at a pretty fair idea of the requirements of our soil. Then, by combining this knowledge with the knowledge of what the crop we wish to grow will remove from the soil, we may judge pretty accurately what our fertilizers should contain to produce the best results on our soil.

Battle Hill, Ga. F. J. MERRIAM.

WEEDS.

Editor Southern Planter:

There is an old saying about weeds, "One year's seeding means seven years' weeding. If all farmers would think of this and do their best to get rid of weeds, how much better it would be not only for them but for everybody? There are many ways to fight them besides weeding. Fire in the winter months is a great help; then the mower, used freely when they are in bloom, will destroy vast numbers. On our rivers, where the lands are rich, great numbers of sheep burrs are grown, and many troublesome vines are allowed to mature the seed, to be floated away by the first high water to settle on some other man's land lower down and seed it with the pest. If these things were burned as soon as the frost kills them, lots of good would be done for others as well as those on whose lands they grow. Much of our best land is heavily seeded with that terrible pest, wild onions, that injure the crop of small grain or hay in which they grow.

I once had a field of winter oats in which the onions came up as thick as the oats. When all were headed out, I was so disgusted with the crop that I put two horse plows to work and turned the whole lot in and then sowed peas on it, and that fall plowed in the peas and the next spring replowed and sowed in spring oats, and the onions never bothered me again. Two spring crops in succession I found a cure for onions. If every farmer would do all he could to get rid of weeds, farming would soon be easier work. I have a friend in New York who owned a farm and rented it out to others for years. At last he took it in charge and has lived on it now for some years. He wrote me this winter that not a weed was in seed on it last year. He has had a heavy fight for years, for when he took it, it was well seeded with weeds. He went to work to get rid of them, and has at last succeeded in doing so. Persistent effort and perseverance will accomplish this.

Hanover Co., Va. COUNTRY.

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Noxious Vines and Weeds.

Can you kindly tell me through the *Southern Planter* what will kill yellow vines and cow-vines, sometimes called "Devil's Shoestring," on loose black soil?

BRAGG PERRY.

Perquimans Co., N. C.

This shows the difficulty in the common names of our wild plants. They are called one name in one section of the country and another elsewhere. So it is hard to keep pace with the common names of plants. I have therefore to guess that by yellow vine you mean cuscuta, or dodder as it is called in some sections, and love-vine in others. By cow-vines we suppose you mean bignonia radicans, or more properly tecoma radicans, the trumpet flower, as it is called generally. The yellow vines that run over the wild plants along the branch, and the similar one that runs over the clover in the field, both belong to the genus cuscuta. They are closely allied to the common morning glory, as you can see by examining the little flowers with a magnifying glass. The plant makes no leaves, and has no green matter. Therefore, it is obliged to live on plants that are green, since the green matter in the leaves is the only thing that enables the plants to get carbon from the air, and without carbon the plant cannot grow. Hence this plant is what we call a parasite, because it lives on what other plants have accumulated. The cuscuta that attacks the clover starts from seed that come mixed with the clover-seed, and which, to the inexperienced, look very much like clover seed, as they are yellow. The seed will germinate on the ground, and will grow to the extent of the food stored in the seed. If, before this is exhausted, it gets hold of a clover plant, it at once lets go the ground and inserts its suckers into the clover, and wraps its stems around the clover, and then is perfectly happy and grows rapidly as long as it can find clover-plants to kill. The only way to get rid of it is to avoid sowing it by learning the appearance of the seed, and then examining every sample of clover seed you buy and rejecting every sample that contains any thing but clover. If the plant appears in the field, cut it off at once and burn it before it has a chance to spread and make seed. Most weeds that infest clover come from foul seed. Farmers are themselves to blame largely, for they buy the clover seed they can get for the least money, and hence get narrow leaf

plantain, cuscuta, and other weeds. Nearly all the weeds that bother clover fields have come to us in the seed. The commission merchant gets from farmers samples of clover seed and sells them just as received. The seedsmen get these seed and put them through a recleaning process (at least those careful of their rep utation do). Therefore, they charge more than the commission merchant does; but the farmer had better pay two prices for clean seed than to have the foul seed given to him.

Now, as to the trumpet or cow-vine. This is a native, and a hard customer to manage. It will grow from the cut roots, and about the only way to kill it is to keep it cultivated off in the hoed crops and never let it show a green leaf above ground during the whole season. This will finally kill it if the land between hoed crops is kept constantly at work growing peas or clover that will smother out other growth. These weeds are troublesome mainly on badly cultivated land and neglected farms. The man who practices a short rotation with plenty of smothering crops, and then cultivates his hoed crops clean, will generally get rid finally of weeds of this character. Treat the land so that the heaviest crops of clover and peas are grown, and the bad weeds will finally be smothered from the soil if they are not allowed to show their heads in the hoed crops. Clean seed and clean culture are the best means for banishing weeds. Long rotations and neglected pastures favor weeds.

W. F. Massey.

Legumes as Nitrogen Gatherers.

Will you have the kindness to inform me, through the *Southern Planter*, in what relative rank the plants named below stand as supplyers of nitrogen to the soil, the vines of all being mowed off for forage, and the nitrogen being limited to the roots and stubble left:

Clay pea, whippoorwill pea, black cow-pea, Canada pea, soja bean, velvet bean, winter vetch, and hairy vetch.

Do they depend on "microbe nodules" to store nitrogen in the soil?

Knoxville, Tenn. A. Buffet.

The whole subject of nitrogen acquirement by legumes is still a matter that needs a great deal of investigation. We know that the presence of the micro-organisms in the nodules on the roots is essential to the acquirement of nitrogen by the plants. But just exactly how these organisms do the work is still a matter very imperfectly understood. Whether they are able, as some suppose, to simply feed on the nitrogen and store it in the form of organic matter in the roots, or whether they are a sort of nitric ferment, oxidizing the nitrogen and forming nitric acid, which seeks a base in the soil, and from which the roots of the clover absorb it, is not yet determined. One thing seems certain and this is that the soil itself outside the roots of the legumes does acquire nitrates aside from the ordinary nitrification in a fertile soil, and outside of that which is stored up in the roots in the form of organic matter. What we do know is that the growing of legumes will enable us to get nitrogen for succeeding crops from the decay of the roots of the legumes left in the soil.

How the plants named compare with each other in the acquisition of nitrogen I cannot say. The same plant on different soil will do more of it than it will on another soil. It would seem that plants growing all through the hot summer, when growth of all kinds is most active, and when the ordinary process of nitrification of organic matter is most active, would do more of this work than a plant like the Canada pea, the season of growth of which is very brief, or of the vetches, which are cold weather plants. Judging from the length of time in making growth, one would assume that the velvet bean would be the most valuable nitrogen collector of all, as it requires between six and seven months to mature; but this fact shuts the velvet bean out when grown much north of Florida. By far the most valuable legume for the South is the cow-pea in all its various forms. With cow-peas in the summer, and crimson clover and the vetches in winter, we cannot see any need for any of the other legumes.

W. F. Massey.

Spent Tan Bark and Lime as a Fertilizer.

We have at this place a steam tannery, at which we can get a quantity of ashes from spent tan bark, and lime that has been used in tanning the hides. The lime is obtained from a quarry on New river near Ripplemeade.

In what proportion ought this lime and ashes to be used on a sandy loam soil? I thought of using about 500 lbs. of each per acre broadcast, and supplement this with about ten tons of stable manure per acre for corn; for winter oats and grass about 500 lbs. of each without the manure; also the same for land to be put in cow peas.

Would this lime and ashes have a tendency to sweeten the land?

Wise Co., Va. W. S. Mathews.

It is hard to say just what such ashes are worth. I can find no analysis of tan bark ashes except one that I had made at the Miller school laboratory some years ago. This showed that the ashes had less than 2 per cent. potash; but they have a considerable percentage of lime, and the lime in them is in a better form than that you will get from the vats, which has lost its caustic character and is simply carbonate. But if you do not have far to haul, it may pay you to use these ashes and lime. But I would not use less than 1,000 lbs. per acre. On the corn land, I would plow under

the manure first and apply the lime on top just before planting, and work it in with the cultivation of the crop. Half a ton per acre of the lime and ashes will be but a moderate dressing. Of course there will be a tendency to sweeten the soil, but this will hardly be as positive as if the lime was freshly slaked.

W. F. MASSEY.

Lime for Tobacco Land.

I have two and a half acres of land that I want to put in tobacco this year. Half of this lot is in German clover, which I want to plow under, and the other half has a lot of vegetation on it. Will cover the whole lot with manure. The soil is medium light with red clay subsoil. Have never used lime on it. Had this same lot in tobacco in 1898, and it was full of white scabs. Would you advise using lime, and how much per acre, and when must I apply it?

Caroline Co., Va. W. H. KELLEY.

I would apply the manure on the part not in clover, and would add some phosphate and potash. As to the lime, I am sorry that I cannot help you Have never applied lime directly to tobacco, and cannot say what the effect would be on the crop. Perhaps there are some of our readers who have had experience in this line who can help you. I never give advice about anything we know nothing about, and liming tobacco is one of these things. Will be glad to hear from any one who knows. Probably our peanut editor in Sussex can tell you all about it.

W. F. MASSEY.

Seeding Grass—Cranberry Growing.

1. Should I apply raw bone meal the first year before seeding grass? Also, what quantity to apply per acre, and how to apply it? Where could I purchase same of best quality at lowest figures?

2. What is your opinion of the *Acme harrow*?

3. I have about ten acres of land close to the St. Lawrence river, which is covered with water at every high tide. What do you think of planting cranberries? Would salt water and our climate have a bad effect on that crop? Where could I purchase plants?

Quebec, Can. CHS. BELLERIVE.

1. If the land is in a fair state of fertility there will be no need for the application of raw bone meal or other fertilizer the first year. But an annual dressing of 300 or 400 lbs. of bone meal thereafter, applied broadcast, will greatly invigorate the sod. You can get fertilizers from Boston manufacturers as conveniently as anywhere in the country.

2. The Acme harrow is an excellent implement for working the surface of the soil after plowing sod, as it will not pull out the sod. But there is no one harrow that is best for all purposes and all soils. The disc and the cutaway are about the best pulverizers in my experience.

3. You would have to dyke the marsh to make it fit for cranberries, and then be prepared to flood it with fresh water. If you want to go into cranberry culture, it will pay you to visit the Cape Cod growers and study their methods. W. F. MASSEY.

Moles.

Some people claim to believe that moles are a greater benefit than an injury, for the reason that they are almost wholly insectiverous in their diet. This I dispute. A mole will destroy seed corn after it has been anointed with tar from the Southern pitch pine, while every other known animal and fowl, including crows, will pass it by. I think the great majority of farmers will favor their extermination. I therefore submit the following cheap and effective plan :

TO DESTROY MOLES.

Mix a proper quantity (no particular rule) of arsenic with corn dough, make a small hole into their roads here and there, and deposit a lump of dough in each, about the size of a marble. Cover the holes with any convenient substance, such as clods of dirt, to exclude the light.

Some years ago, I had a piece of land badly infested with moles, that I wished to plant in sweet potatoes. Success depended on first getting rid of the moles. As a matter of experiment, I concluded to try corn dough and arsenic, as above. Two applications resulted in a virtual extermination. Some of the moles came out of the ground, and soon after died. Other poisons may answer as well, but I know that arsenic can be relied on. The best time to apply is perhaps in early spring, soon after the moles leave their winter quarters. BRYAN TYSON.

Moore Co., N. C.

Bean Growing in Virginia.

I would say to Mr. W. B. Fetter and others that the white navy bean (a bunch bean), does very well here, but must not be planted earlier than the 15th of June nor later than the 10th of July. Take good fair land, plow well and harrow finely and plant in rows three feet apart about fourteen inches apart in row, work twice with cultivator. The beans will ripen just before frost; pull up and throw in heaps when dry, and do not let them remain out for the rain to fall on them.

Hanover Co., Va. F. GUY.

Onions or Garlic in Pasture.

Will you please state in the *Planter* what is the best, if there is any way, to get rid of garlic in a permanent pasture. Also how best to prevent it from invading such pasture. C. J. HILLYER.

Spotsylvania Co., Va.

If any one knows, I will be glad to have them tell. I cannot give any remedy for them. I am in the same boat, and would give a great deal to know how to eradicate onions from permanent grass, or from anywhere else, for that matter. W. F. MASSEY.

[See an article in this issue on weeds, where the writer tells how he got rid of this pest.—ED.]

Peas for Hog Pasture.

Kindly give me your idea of sowing peas for hogs, and if the black pea is best to sow. I have a fine grey pea, and would like to sow them, if you think they suit hogs as well as the black.

Fluvanna Co., Va. CHAS. B. WOOD.

We have published a number of articles on the subject of peas as forage crops for stock and pastures for hogs, and shall have more to say on the subject in the next two issues, when the planting of the pea crop is seasonable. Shortly we may say that we strongly advise the growing of peas for all stock, both for pasture and for hay. As a hog pasture we know of nothing better. In different sections of the South, different varieties of the pea are grown. In some the Black does best, in others the Red Ripper, and again in others the Whippoorwill or the Unknown. In Virginia, we have generally found the black pea to do well both as a heavy producer of vines and of peas. The Unknown produces more vines, but does not mature its seed so well or so fully as the black in this State. We do not know the grey pea you mention, but if it grows well and matures its seed it will, no doubt, serve the purpose as well as the black. All the cow peas are simply variations of one genus of plants.—ED.

Rock Salt—Raw Bone vs. Acid Phosphate.

Is rock salt for cattle sold in Richmond or Baltimore? I see no advertisement of it in the *Planter*. Kindly let me know where to get it.

Is not "Armour's raw bone" at $28 per ton, analysis 20 per cent. phosphoric acid and 4½ per cent. ammonia, cheaper than "acid phosphate" at $14 per ton, analysis 12 per cent. phosphoric acid?

Prince Edward Co., Va. ENQUIRER.

Rock salk can be had in Richmond of several of the merchants dealing in farm supplies. Messrs. Carter & Ryland we know to handle it.

It is not possible to compare the relative commercial values of raw bone and acid phosphate. In raw bone the phosphoric acid is in an insoluble condition, and therefore not immediately available. Most of the Experiment Stations place no commercial value on insoluble phosphoric acid. Some place it at 2 cents per pound. Practical experience in the use of raw bone demonstrates it to be a valuable fertilizer on most lands, but by reason of the insoluble character of the phosphoric acid it is slow in action, yet lasting in its effects. It would be unjust to estimate its full value at 2 cents per pound, but equally unjust to estimate it at 4 cents per pound, which is the commercial value of the available phosphoric acid in acid phosphate, and would be the commercial value of that in bone if made available by the use of acid.—ED.

Lawn Ruined by Weeds and Coarse Grass—How to Remedy.

Plantain, sorrel and a most rampant vigorous, worthless wild grass have crowded out all desirable grasses in my lawn of about five acres area.

How best can I restore my lawn is my problem, and I would be glad to have you suggest the remedy.

My soil is rotten rock or decomposed gneiss and schist, and does not settle back like clay after being heaved by frost. I never rolled my lawn until this month.

The wild grass forms a flat bunch, and throws up a sheathless stalk with radiating arms on its top, carrying round pendant seeds, but which ripen and fall almost as soon as fully formed. My manager calls it crow's foot.

My farm is in Alexandria county, Va., and nothing thus far but heavy pasturing will keep down broomsedge and above wild grass. The latter, however, will crowd out sedge—in fact, everything else.

District of Columbia. R. S. LACEY.

The presence of sorrel, plantain and the coarse wild grasses are usually indicative of a lack of fertility in the land. They are "survivals of the fittest." Before any steps can be taken to renovate the lawn permanently, steps must be taken to rid the land of the weed seeds with which it will now be well seeded from the growth of the sorrel, plantain and coarse grass, which, from the description, we take to be *Panicum crus-galli* (cock's foot) for several years. To secure this it will be necessary to plow the land and work it fine, and thus encourage germination of the weed seeds. As soon as the weeds commence to grow the land should be cultivated and thus kill the crop. Continue this through the summer and early fall, killing each new crop as it germinates. By the time for seeding grass in the fall, the land will be clean from weeds. In August, apply 50 bushels of lime to the acre, and harrow in. A few weeks later, apply 500 lbs. of bone meal to the acre, harrow in, and then seed with a heavy seeding of mixed lawn grasses, harrow in and roll. In the spring, when the grass commences to grow, apply 100 lbs. of nitrate of soda to the acre, roll, and keep mowed short all the summer. In this way a fine lawn can be secured. A dressing of 50 lbs. of muriate of potash and 300 lbs. of acid phosphate to the acre every two years in the fall, and 50 lbs. of nitrate of soda to the acre in the spring, or of 300 or 400 lbs. of bone meal every two years, will prevent the recurrence of weeds and coarse grass.—ED.

Yield of Corn.

Please be so kind as to answer the following questions in the April *Planter:*

I saw in the February *Planter* that Mr. H. E. Wood, of Fluvanna county, took an acre of land known in that section as "wornout land," and made it produce 36⅞ bbls. of corn the first year, after spring plowing

and late planting. Now, in "Old Hanover," on what is known as "wornout land," 6⅔ bbls., without the 30, is considered a most excellent yield, and we can well afford to work land that will produce that amount Now, I wish to know why land that will produce so well was turned out to grow pines? And as I see nothing unusual in Mr. Wood's mode of cultivating, I wish to know why this great difference of yields in counties so near each other?

And I thought 36⅔ bbls. of corn was an enormous yield for any land. But if Mr. Wood made this under such adverse circumstances on "wornout land," how much would he consider was a maximum yield for an acre of land in a high state of cultivation under favorable circumstances? W. W. GREEN.

Hanover Co., Va.

Our correspondent does Mr. Wood an injustice, no doubt unintentionally. Mr. Wood made the yield of 36⅔ bbls. on a rich piece of river-bank land, as he was careful to explain. The residue of the land, on some of which he made yields of from 17 to 18 bbls., was partly high and partly lowland, which had been abandoned twenty years or more ago. On the whole twenty-two acres he made an average of 11 bbls. (55 bush.) to the acre. Mr. Wood hopes and expects yet to make 200 bushels to the acre.—ED.

Watermelon Growing.

Will you please inform me in your next month's issue what chemicals will make watermelons on the same piece of ground two or three years in succession?

I have made the best of preparation after the second year on the same land, but without good results.

I am a market gardener, and have an experience of twenty years or more. My farm contains about thirty acres, on which I have to make all my crops, sometimes two crops on the same piece of land.

Chesterfield Co., Va. J. W. COLLIER.

We know of no fertilizing materials that can be used which will make certain a crop of watermelons when grown several years in succession on the same piece of land. Watermelons, like almost every other crop, call for a system of rotation in their growth. They appear at the best to grow with less vigor on land upon which a similar crop has been grown in the previous year, and frequently fail altogether from some fungoid disease with which the previous crop has inoculated the land. We hear that much of the celebrated Georgia melon land has had to be abandoned within the last year or two on this account. New land, or at least land on which melons have not been grown for a year or two, ought to be selected every year for the crop. A few forksful of compost of well-rotted manure and leaf mould should be placed in a depression where the plants are grown, and this should be supplemented by a handful of high-grade fertilizer having 2 or 3 per cent. of ammonia, 8 per cent. of phosphoric acid, and 8 per cent. of potash. The ammonia may be derived from cotton-seed meal, dried blood or nitrate of soda, the phosphoric acid from acid phosphate or dissolved bone and the potash from kainit or muriate of potash.—ED.

The Best Plow to Use—Moon Signs.

Please answer the following in the April number of the *Planter*:

1. If you are acquainted with the Oliver Chilled Plows, which do you recommend as being the best on ordinary land, the No. 20 or the No. 40? The No. 40 turns the soil over more flat than the No. 20. Which is the better way to plow?

2. A great many people believe in planting by the moon. I, myself, do not believe in it. What is your opinion about it?

3. After breaking corn land in the fall, should the cultivation before planting be deep or shallow?

Siam, Tenn. A SUBSCRIBER.

1. We prefer to use a plow that does not lay the furrow flat, especially when breaking land in the fall, winter, and early spring. When the furrow slice is laid on edge, the soil of the surface and subsoil is easier mixed together by the harrow and cultivator and better results obtained.

2. Planting by the sign of the moon is an old superstition which, in this age of knowledge and scientific teaching, ought never to be heard of. If the land is got into good mechanical and physical condition by being worked and fertilized, when in a proper condition for working, and the crop is planted in due season, and kept properly cultivated during growth, and seasonable rains fall during the period of growth, a crop may be confidently reckoned upon, however the signs of the moon may be at the time of planting. We are afraid moon signs are made the excuse for much neglect, bad farming, and want of appreciation of scientific teaching, amongst ignorant people throughout the South.

3. Deep.—ED.

Onion Growing—Fertilizer for Cotton.

1. What is the proper way to cultivate onions? Should they be worked deep or shallow? These are onions planted from sets.

2. I have a piece of new ground cut down last winter, and laid out last summer. It is sandy land. I want to plant cotton on it. What is the best fertilizer to use?

Lexington Co., S. C. GEO. P. CROSS.

1. Onion sets should be cultivated frequently, but shallow, until they have made their growth, and then be left alone to mature.

2. For a cotton fertilizer, mix 1,000 lbs of acid phosphate, 800 lbs. of cotton-seed meal, and 200 lbs. of kainit, to make a ton, and apply at the rate of 300 or 400 lbs. to the acre.—ED.

Paint for Roof.

Please inform me, through your columns, if it would be advisable to put zinc and lead in roof-paint. I painted my roof with bought paint last fall, and it has chalked already.

Whilst we do not profess to be experts in paint, and have no knowledge of the subject other than that acquired by experience in using one or two different varieties, we do not think either lead or zinc paints to be suitable for painting a metal roof. These paints are suitable for wood work, which is absorbent, but metal wants a paint that will form a protective coat and adhere without being absorbed. For this purpose, there are special metallic paints prepared and sold. We have found a mixture of tar and pitch applied hot to be a good protector. This should be sprinkled over with sand before it sets hard, and then it forms a most desirable coating.—ED.

Hog Feeding—Age of Breeding Animals.

1. I am feeding my pigs on slop of shorts and corn meal. Is it best to feed this as soon as it is mixed, or should it be allowed to sour?

2. At what age should hogs be allowed to breed?

3. Would a buck lambed the 1st ult. do for service next fall?

Albemarle Co., Va. X. Y. Z.

1. The slop should be fed sweet, but should be mixed long enough before being fed to allow the meal used to be thoroughly soaked. Sour milk has been fed to hogs with some little greater advantage than sweet, but the difference is scarcely appreciable.

2. The use of immature animals for breeding purposes, whether male or female, ought not to be encouraged. It is a prolific source of degeneracy. A sow should not have a litter before she is a year old, or near that age. A buck lamb should not be used at all for service before he is ten months or a year old, and then only for light service the first year.—ED.

Hen Manure—Fertilizer for Corn.

1. Will you kindly give the per cent. of ammonia or nitrogen in hen manure?

2. Could I make a good fertilizer with the following: South Carolina rock, muriate of potash and hen manure, and how should they be mixed? Would there be phosphoric acid enough in the rock?

Amelia Co., Va. L. C. KIMBALL.

1. Fresh hen manure has on an average 1.10 per. cent. of nitrogen. If carefully stored in barrels and kept moist, most of this will be saved.

2. A mixture of hen manure, South Carolina rock, treated with acid and thus made into acid phosphate, and muriate of potash, will make as good a corn fertilizer as can be used on the crop. Mix 1,000 lbs. of 14 per cent. acid phosphate, 60 lbs. of muriate of potash, and 350 lbs. of hen manure. Apply at the rate of 300 or 400 lbs. to the acre.—ED.

Potash in Soils—Potash Salts.

Are the data given on page 116 of Agricultural Report for 1896, relative to the potash contents of soil, and its availability, in your opinion reliable as a basis from which to decide if an application of same is needed?

If so, can I get samples analyzed, by whom, at what cost, and proper way of taking samples?

Where can I get potassium phosphate as noted on page 128 of same volume, and at what price?

I think some similar composition is what I want for peanuts.

Surry Co., Va. READER.

The author of the article from which you quote is Dr. Wiley, the Chief of the Division of Chemistry of the Department of Agriculture. He is one of the highest authorities on chemical questions in this country, and we have the fullest confidence in any statement he makes. The Chemist of the State Department of Agriculture at Richmond makes analyses of soils for citizens of the State free of charge when his other duties permit of his having time to do this work, but we should doubt much whether he would, at this season of the year, be able to find time for such work. Possibly the Chemical Division of the Department of Agriculture at Washington might help you. Personally, we have very little confidence in chemical analyses of soils being of much help in the practical work of the farm. The results worked out in nature's laboratory rarely agree with those worked out in the chemist's laboratory, by reason of the climatic conditions affecting the soil so differently in the field from those affecting it in the laboratory.

The German Kali Co., Nassau St., New York City, are the sole agents in this country for sale of all the German Potash Salts.—ED.

SPRAYING WITH PURE SULPHATE.

Dr. Jabez Fisher, the veteran horticulturist of Worcester county, Mass., uses pure sulphate of copper in place of bordeaux mixture, adding 2 or 3 ounces of the copper sulphate to a 50 gallon barrel of water. The 2 ounce solution is for tender trees like peaches and plums, while the stronger is for apples, pears and forage in general. In spring, before the buds swell, a very strong solution—2 pounds to 50 gallons—is sprayed upon the foliage of the previous year as it lies upon the ground in order to kill the spores found there.

TO DESTROY LICE ON HOGS.

Wash the animals all over with crude petroleum, and the next day give them a thorough washing with warm water and soap.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

The cold wet weather of March has greatly delayed work in the garden and truck patches, and little has been done in the way of getting crops into the land. With such weather as we are still having, seeds of all kinds are better out of the ground than planted. Be careful not to attempt the working of the land until it is dry enough to work freely, and leave the tools clean. Land worked when wet is land put back rather than forward. Before planting, see that you have a fine deep seed bed. It should be made as fine as an ash bed, to the depth of ten inches or a foot, if you are to have the best success, and it should be made as rich with well-rotted manure and high grade fertilizers as possible. Vegetables of all kinds, to be good, should be grown quickly, and to grow quickly, they must have plenty of food readily assimilable. Do not sow or set out the main crops of vegetables until towards the end of the month, as there will yet be many cold days and nights. Sow small crops of English peas, radishes, turnips, beets, lettuce, parsley, onions and kale. If the weather should be mild, these will come on ahead of the main crop, and thus give at least a small gathering, whilst if cold weather continues, not much loss will be sustained in having to resow.

Set out cabbage plants, onion sets and asparagus roots.

Transplant tomato plants raised in hot beds into cold frames, or where they can be sheltered from the cold until the weather is more seasonable. Nothing so much improves tomato plants as to transplant them several times before setting them out finally. It makes them stocky and well rotted, and they fruit much earlier.

Seeds of tomatoes, egg-plants, peppers, and cantaloupes should be sown in boxes or in gentle heat, and the plants be set out in cold frames as soon as they are large enough to handle.

Hot beds should be got ready for striking sweet potato slips. Make up the bed of good, fresh horse litter and leaves, tramped solid. This should be eighteen inches or two feet thick, and should be enclosed with plank. After the bed has settled, cover with four or five inches of woods-mould and sand, and leave to warm up. When the fiery heat has cooled down a little, spread the potato sets on the soil, barely touching each other, and cover with sandy mould. Keep just moist, not wet, or you will be troubled with rot. Keep covered with sash or boards until the weather becomes mild. This hot bed may be used for raising tomato plants and other tender plants before bedding down the sweet potatoes, as these are not required to be set out before June.

Do not neglect the spraying of the orchard and vineyard. In our last issue will be found a spray calendar giving full instructions.

Clean up all trash from the lawn and flower garden, and let the flower beds be dug over and be raked fine, ready for the sowing of seeds and setting out of plants. Give the lawn a good rolling.

THE FRUIT PROSPECT.

Notwithstanding the cold wet weather, we hear reports of good fruit prospects. The frost has not injured the buds as yet. There is every indication of a heavy bloom on apples, peaches, plums and pears. Strawberries are also looking well.

THE ENGLISH PEA LOUSE.

Last year very serious damage was done to the early English pea crops in the Tidewater section of this State and in Maryland; indeed, so great was the injury that whole fields were a loss. The pest again appeared in the fall-sown crop. Whilst, of course, it is uncertain whether the crop will be again subjected to the ravages of the insect this year, yet when once such a pest has appeared it is more than probable, that at least for a few years a recurrence of the visitation is not only possible but probable. It is well, therefore, to know if anything can be done to prevent or combat the pest if it appears. The Entomologist and Horticulturist of the Virginia Experiment Station made experiments last year with various sprays upon crops infested with the louse, and we herewith present the results of such work for the information of pea growers.

"Last October our attention was called to the destruction of the late pea crop in the vicinity of Norfolk by a green louse.

Upon investigation, this insect was found to be widely distributed; though many fields were visited none were found free from this pest. A field of eight acres belonging to Mr. T. L. Nimmels, planted to this crop, was entirely destroyed. The parched vines were white with cast skins and dead insects, and the soil was also covered with them. Several other fields were in the same condition. Judging from the reports of planters, the early crop was injured much worse than the late one. Mr. J. Lyman Babcock states that

he planted one field the second time for the spring crop, and both crops were entirely destroyed. This insect also did considerable damage in 1898.

The insect responsible for this damage is a new economic species. It appears to be *Nectarophora destructor*, the same reported by Professor W. G. Johnson at a meeting of the Association of Economic Entomologists of last year.

The young of this species are brought forth alive during the summer months, from both the winged and wingless agamic mothers, at a rapid rate. They first attack the young tender shoots, but soon spread over the entire plant and sap the life out of it in a few days. Like other aphidæ, this insect is not a leaf eater, but inserts its beak in the tissues of the plant and sucks the sap, hence no food poison can affect it, and we must rely on those insecticides which kill by contact.

Our experiments were made in a tentative way, and extended over such a short period that they cannot be considered conclusive, yet something was learned, and in view of the large interests at stake, we deem it proper to give the results to growers.

Good's No. 6 tobacco potash soap, and a kerosene water mixture were used in this experiment and were applied with the Deming knapsack sprayer. This soap is a new brand containing a percentage of tobacco and costs a trifle more than the standard No. 3 soap. The lice were plentiful, both on the upper and lower surfaces of the leaves, and in this part of the experiment the spray was applied only to the parts of the vines that could be reached as they lay on the ground, consequently the insecticide reached not more than 60 or 70 per cent. of the insects and the number killed will appear small. This treatment was applied October 27th.

Plots 1 and 2 were treated with a solution of soap, one pound to six and eight gallons of water respectively. On the 28th, 60 to 70 per cent. of the insects were dead; 29th, the foliage showed slight injury. Results almost identical for the two plots.

Plots 3 and 5 received the soap solution, one pound to ten and twelve gallons water respectively; 28th, about 60 per cent. of the insects were dead; 29th, foliage showed no injury. These two plots also gave practically the same results.

Plot 6 was treated with soap solution, one pound to sixteen gallons water; 28th, about 50 per cent. of insects dead; 29th, foliage showed no injury.

Plot 7 was treated with the soap solution, one pound to twenty gallons water; 28th, 30 per cent. of insects dead; 29th, foliage showed no injury.

Plots 9 and 10 received the soap solution, one pound to twenty-six and thirty two gallons of water respectively; 28th, 15 to 20 per cent. of insects dead; 29th, foliage showed no injury.

Plot 12, treated with 5 per cent. kerosene-water mixture; 28th, 5 to 10 per cent. of insects dead; 29th, foliage showed slight injury.

Plot 13, treated with 7½ per cent. kerosene-water mixture; 28th, 10 to 15 per cent. of insects dead; 29th, foliage showed slight injury.

Plot 14, treated with 10 per cent. kerosene-water mixture; 28th, 25 to 35 per cent. of insects dead; 29th, foliage showed greater injury.

Plots 16, 17, 18, 20 and 21 were treated with 12½, 15, 20, 25 and 30 per cent. kerosene water mixture respectively, and gave almost identically the same results—viz., on 28th, 50 to 60 per cent. of insects dead; 29th, a large per cent. of foliage burned.

Plots 4, 8, 11, 15 and 19 were checks, upon which the insects appeared perfectly healthy all through the experiment.

From the foregoing it appears that the soap solutions, one pound to six and eight gallons of water, though rather more effective on the lice than the weaker solutions, are too strong for safe use and injured the foliage.

The treatment with soap, one pound to ten and twelve gallons water, though not quite so effective on the lice, did not injure the foliage, and we think that they can be relied upon to kill all the lice with which they come in contact.

The weaker solutions did not injure the foliage, but were not effective on the lice.

Shade had partly reached the plots before they were treated with the kerosene water mixture, and this may partly account for the injury to foliage; but we think kerosene unsafe, no matter how effective against the lice. Even when a small per cent. of kerosene is used in the water mixture, it penetrates the tissues of the plants, changing their color and permanently injuring them, yet this small per cent. is not effective against the lice. The larger per cent. of kerosene is effective against lice but injures the foliage badly.

As a sufficient number of lice were not reached by the above treatment, another experiment with soap was determined upon; kerosene being so unsatisfactory was abandoned. The vines were sprayed as thoroughly as possible, as they lay upon the ground; they were then turned over and the other side sprayed. In this way a much larger number of lice were reached. A soap solution of one pound to twelve gallons of water was used; it killed 70 to 80 per cent. of the lice and did not injure the foliage. It would require twenty pounds of soap, costing about one dollar, to treat one acre at this rate.

As the lice often appear on the tips first, it is probable the vines could be watched and treated before they become so badly infested as to require lifting in order to treat the under side. Then this could be repeated whenever the insects reappear. Only careful field work on a large scale can settle the details of treatment of this insect.

J. L. PHILLIPS,
Assistant in Entomology.
H. L. PRICE,
Assistant in Horticulture.
Experiment Station, Blacksburg, Va.

Peach Leaf Curl may be prevented by spraying. The foliage of peach trees is very tender, and often the spraying is of more injury than the disease. It should be done before the buds start in the spring, using copper sulphate or strong bordeuax mixture.

The Striped Cucumber Beetle is most effectively controlled by the use of Paris green when the insects are on the surface of the leaf. Kerosene emulsion and pyrethrum have been used with good results. The wild cucumber can be planted as a trap crop, as the beetles seem to be very fond of it.

Live Stock and Dairy.

PROMINENT FEATURES OF THE GREAT FOUR-DAYS'-HEREFORD SALE AT KANSAS CITY, FEBRUARY 27th TO MARCH 2d, AND SOME RECOLLECTIONS.

Another Hereford sale, another record broken, another proof that Herefords are all their breeders claim for them. In spite of the worst snow storm in several years, which blockaded some bidders from the first two days' sales, and had a most dampening effect on the first arrivals, 198 sold for $65,730.00 an average of $331.80, beating the average at the October Hereford show and sale, which was $317.11 and eclipsing the Aberdeen-Angus Sale, held in Chicago Nov. 23d and 24th, at which the average was $324.04, the latter being the efforts of six breeders, the recent Hereford sale of only four.

The names of those who made this sale a golden reality:

On first day, Mr. C. A. Stannard, owner of the famous Sunny Slope Herd, Emporia, Kansas.

Second day, Mr. T. F. B. Sotham, president of the American Hereford Breeders' Association and proprietor of the celebrated Weaver Grove Herd at Chillicothe, Mo.

Third day, Messrs. W. S. Van Natta & Son, of Fowler, Ind. The home of those grand old bulls Fowler, Cherry Boy, and others.

Fourth day, Messrs. Scott & Marsh, owners of the well-known herd at Belton, Mo.

On the first day four sons of imported Salisbury (19083) 76059, the head of the Castalia Herd at Keswick, Va, brought the following prices: $300.00, $375.00, $400.00, $410.00, which, however, would undoubtedly have been higher under favorable weather conditions; in fact, Mr. Stannard had been offered $500.00 and $700.00 for two of them at private sale.

This is the first time the Salisbury calves have been offered to the public, and they created most favorable comment.

On the second day the four-year-old bull, Thickset, broke all records of Herefords at public auction in America by selling for $5,100.00 to Mr. Wm. Humphrey of Ashland, Neb.

Grandee, a three-year-old, brought $1,500.00, and Sir Comewell, a four-year old, $1,000.00.

All three of these bulls are sired by Corrector 48976, and all were bred by T. F. B. Sotham, who is also the breeder of their sire; an unprecedented record, a glowing tribute! All honor to Mr. Sotham for his indefatigable zeal in the cause of Herefords in particular and good stock generally, and for his patience and skill in producing an epoch-making sire like Corrector, by applying the most scientific principles to breeding.

The average of Mr. Sotham's 50 head was $454.70.

And now a few reminiscences are in order.

On March 1, 1899, at Mr. Sotham's annual sale Sir Bredwell, also sired by Corrector, or as he is affectionately called, "Old Dad," broke all records for Herefords at public auction in America by going under the hammer for $5,000.00.

And on March 3, 1898, at the famous Sunny Slope sale of imported and home-bred Herefords, the imported two year old bull Salisbury, bred by Mr. John Price, Pembridge, England, broke all previous similar records by going at $3,000.00 to his present owner, Mr. Murray Boocock, of Keswick, Va., where he now heads the Castalia herd of registered Herefords.

Salisbury is showing in his calves all that was expected of him as a sire of the finest type of intelligent breeding—the result of years of study and work.

Mr. Boocock is doing much to advance the cause of good stock by his constant effort and educational work along this line, and is a firm believer in the future prosperity of the cattle industry of the South.

We quote the following from the *Breeders' Gazette:*

Mr. Murray Boocock of Castalia Farm, Keswick, Va., is one of those who have reason to join in *The Gazette's* urgent demand that probable value for breeding purposes shall be set up as a show-yard standard rather than mere fat or tallow. As has already been stated in these columns he shipped to the late Kansas City Hereford show his valuable imported stock bull Salisbury 76059, along with some high-class breeding females and some Salisbury calves. No exhibit seen upon that occasion possessed more interest for the breeding fraternity, but it was soon made apparent that the Castalia cattle did not carry sufficient fat to enable them to compete successfully with more highly-conditioned entries. Salisbury himself has wisely been held down to ordinary breeding condition. Ever since his importation he has given promise of proving a sire of out-standing character. His calves possess marked quality and fine finish, and under favorable conditions would develop rare wealth of flesh. Mr. Boocock may have been somewhat disappointed at the result of his tilt with fat at Kansas City, but he is in no wise discouraged. He has a capital foundation to build upon and some of the best "white-faces" of the future should come from Castalia Farm.

THE SHORT HORNS MOVING UP.

Our Hereford friends have had a long and prosperous run, and we doubt not that the end is not yet. Indications strongly point, however, now to a return to favor of our old friends, the Short Horns. The sales of this breed in 1899, demonstrated that the friends of

the Short Horns were not all dead, although the aver age prices made were not equa to those made at Hereford Sales. At the dispersion sale of the herd of J. R. Crawford & Sons, at Newton, Ia., on the 8th of March last, evidence was abundant that the friends of the breed were still legion, and that they were ready to prove their faith by their works. Thirteen bulls sold for $3,670, an average of $282.30; 42 cows sold for $18,255, an average of $434.65; 55 head sold for $21,925, an average of $398.63. Amongst the highest priced ones was Gwendoline 5th, sold for $1.100; Bashful 4th, sold for $.145, and Glen Victoria 2d, sold for $920. Six Nonpareils sold at an average of $636 each. Victor Baron, the son of Baron Cruickshank, sold for $.25.

At the Barclay sale, 21 head from the Davidson herd made an average of nearly $370.

These are good prices, and we are inclined to think are only the forerunners of others. There is a stability about the popularity of the Short Horns which never fails to assert itself when challenged. It is built on well and long tried merit, and is deserved.

HEREFORDS STEADILY ADVANCING IN FAVOR.

When I began breeding in 1897, and later joined the American Hereford Breeders' Association, I was the only Virginia member. To day there are five Virginia members, and I know of several parties owning pure bred Hereford bulls who are now looking for Hereford heifer calves to begin breeding registered stock. The cross of a Hereford sire on selected Jersey cows produces a "white-face" calf with the Hereford tendency to flesh dominating. Dairymen who do not know what to do with their calves can by using a Hereford sire and substituting skim-milk and flax-seed jelly or linseed oil cake meal, "old process," for whole milk raise their calves to good veals. This is a demonstrated fact, not a theory. Here is a solution of the stock problem which many farmers will welcome.

Every indication of the future prosperity of the cattle industry of the South is based on the solution of breed and feed problem. The breed must be a hardy, thrifty, "rustling" kind; the feed must largely be locally produced to be economical. For instance, fifty years ago the by-products of the cotton plant were cast aside as worthless; to day 100 pounds of cotton seed yields approximately:

Cotton-seed hulls	48.9	pounds.
Cotton-seed meal	37.5	"
Cotton-seed oil	12.5	"

and the hulls and meal find ready sale as stock feed in the local markets. Linseed oil cake and meal ought to be too well known to need more than mention, but it is a deplorable fact that while this valuable stock food has long been used in England and the West, Southern stockmen are only just beginning to realize its value.

As to grasses the Agricultural Stations are doing their best to instruct the South that grasses heretofore neglected can be profitably cultivated. The same is true of the fodders. Try sorghum. As to climate, that of the Middle Atlantic, Southern Coast, Southern Middle and Gulf States is unsurpassed, and the opportunity is afforded of raising cattle in a natural way, with plenty of sun light, and fresh air, and only simple rain proof sheds to protect them from cold storms and provide a dry bed.

There are no "hot-house plants" raised at Castalia.

The possibilities of making this a great cattle section await the co-operation of energetic men. This movement has been started and is progressing; it is now a question of time.

These few words to my brother breeders and stockmen to induce them to give good cattle and grass a chance. Of course, there are one or two other breeds one might mention, but as for me, give me Herefords. This reminds me of the story of the old boatman who used to run a sail-boat ferry across the Hudson at Poughkeepsie. When the first steam ferryboat was introduced there, the old fellow still persisted in running his sail boat as usual, and one day he was rewarded, for the steamboat broke down and the increased traffic kept him busy day and night. "Ye may ta'k about yer steam cars an' yer steamboats" he said, "but as fer me, gi' me canvass." And the people thought so too.

MURRAY BOOCOCK.

Albemarle, Va.

IN SEARCH OF ABERDEEN-ANGUS CATTLE.

Editor Southern Planter:

Resuming description of my trip through West Virginia, Indiana and Illinois, the early part of which was described in the February issue.

After passing over the Alleghanies, the greater part of my railroad travelling was at night, giving little opportunity for observation.

Between Cincinnati and Indianapolis, and a little beyond, I was able to "spy out the land." It did not strike me as being particularly fertile, judging from the corn stubbles and poor growth of wheat. The land was beautifully level, occasionally changing into slightly rolling, well tended, with clean fields and fence rows, and dotted here and there with good buildings.

A gentleman on the cars, a resident of the country through which we were passing, said the land was formerly quite fertile, producing fine crops, but was now *wearing out*, and that the unfavorable appearance of the wheat crop was due to Hessian fly.

I was struck with the absence of cattle, and especially cattle of good blood along this Miami Valley. Hogs were in abundance, many of them Chester Whites, Jersey Reds and Berkshires, but the Poland-Chinas predominating.

From Indianapolis my journey took me about one hundred and twenty miles to Camargo, Douglas Co., Illinois.

What a revelation it was to one from the rough hills of Middle Virginia to awake and suddenly gaze upon the apparently boundless and fertile prairies, stretching on either hand as far as the eye could reach, thousands upon thousands of acres, said to be one of the garden spots of this country; here and there a clump of timber to relieve the monotony of a dead level.

Not ordinary acres were these, but acres every foot of which was fertile, as rich as our river bottoms of the East, yielding forty to sixty bushels of corn per acre, and in oats as much, and valued at $65 to $80 per acre. In my buggy drives around Camargo I did not see an acre of wheat, and was told it is now hard to raise it on account of winter killing and insect pests.

In driving around one sees great pens of yellow and white corn unroofed and unprotected from thieves. I was told that but little care was taken in locking up anything.

The country is divided into sections, the roads generally taking air lines. When one is asked what direction he is going to take, he usually replies north, south, east or west, as the case may be.

Oats are seeded there only in spring, our fall oat winter killing. The seeding of a crop of oats is almost a pastime. When ready for work they gear to a wagon a broadcast seeder, fill the body with oats and drive ahead. The capacity of the seeder is 80 acres per day. This section is embraced in the broom-corn section of Illinois, Arcola, about ten miles distant, being the centre. Some of the producers had sold at $60 per ton, and the trust that purchased was selling at $200, and was even then trying to get its grip on the seed.

The people reminded me a good deal of our own people, indeed, many of them are of Virginia descent. A little acquaintance is necessary to bring out the Virginia qualities. In answering ordinary questions of a stranger they are rather more abrupt, and not so much inclined to go into details as we are, which may be accounted for from the fact that they have a more mixed population to encounter than we have, a large foreign population, and more business on their hands.

The negro element is almost nothing, and what there is, is confined mainly to cities. Not enough of them to make a race question, though that question sprang up last summer at the cost of several lives At Tuscola I was informed there were a few in the white schools. At Arcola, it was said, no negro could remain; if he arrived at night, he must depart in the morning. They like them for servants One breeder of Angus cattle offered to trade a big black fat cow for a big black fat Virginia cook. I tried one when I returned home; her reply was, "Illinois! I done tried Illinois, and I thanked de Lord when He let me lef it." There are few cattle grazed, that is, stock cattle, but extensive feeding is carried on I saw few calves or yearlings around Douglass county, but many two, three and four year olds in the feed lots, showing mostly Short Horn grading. Feeding them means corn, corn, corn, and this section is where some of the market toppers go from. The cattle have what roughness they want, and blue grass in the summer, but still the corn is fed.

One farm, owned by Mr. Bragg of Tuscola, was feeding 300 head, not for two, four or six months, but for a year, and he expected to feed each steer (they were all steers) 100 bushels of corn during that period, or 30,000 bushels to the bunch. He was then buying corn at 25 cents per bushel delivered at his granaries.

Mr. Bragg brought into that section, in the fall of 1898, 1,200 steers, and the fall of 1899, 1,500. It was a surprise to me, and a very gratifying one, to learn that all those cattle had been purchased in Virginia. They were not such cattle, however, as we see in Eastern and Middle Virginia, but cattle of good blood, raised on good grass. It was particularly gratifying that the purchases from one fall to the next increased 25 per cent., showing that Virginia cattle had done well in the feed lots of Illinois.

Is not this suggestive that as the plow and sheep force cattle from the far Western and Southwestern ranges, the cheap waste lands of the South may become the breeding ground for the cattle that must fill the feed lots of the Central West?

How much more probability of its fulfillment, if we will improve the blood of our cattle. It is neither possible nor probable unless we do.

The necessity for this improvement is being more and more emphasized each year, and never more than in the past season. While there is a general admission of a scarcity of cattle, yet common stock have been a drug for six months to the sorrow of many a speculator; yet cattle showing improved blood have found ready buyers at good prices.

I visited three breeding establishments of Angus cattle in Illinois, and at one—a Mr. Armstrong's—saw two cows that he had lately purchased at the November sale in Chicago. They were handsome cattle, and brought high figures, but I have seen, as to individuality, as good cattle at $100.

Mr. Stone, in the February number of the *Planter*, gives some figures comparing average prices at which several of the beef breeds have sold at public sales.

In passing let me say I have seen a portion of Mr. Stone's Herefords, and they are good ones. Mr. Stone is doing a good thing for himself and this section in introducing the Hereford cattle, and buyers who prefer that breed should see his stock, and get his figures.

The figures given show the Angus a little behind the Hereford. This should be regarded as a remarkable showing to the advantage of the Angus. It must be borne in mind that this breed of cattle is of comparatively recent introduction in this country, and consequently is few in number. There are no figures at hand to base my statement on, but it is safe to assert there are ten Herefords to one Angus.

The cattle sold at the sales referred to by Mr. Stone are presumably the "pick of the land." Other things being equal, the larger number to select from should give the best results. Then again the Herefords have some of the richest men of this country to back them, one of the strongest associations financially to support them, in many ways, as well as in offering heavy premiums at exhibitions of various kind. It is true the Herefords have done a little better at those sales, but

has anything but an Angus touched the high-water mark for seventeen years, of 8¼ cents for twelve head and 8½ cents for three head? The twelve averaged $114 *for beef, and not yet two years old.* And who bought this beef? some one trying to boom the Angus breed? Armour & Co., who buy for the dollars and cents there is in a transaction.

If Armour & Co. have a fancy breed it should be the Hereford, for a member of the concern is a leading breeder of Hereford cattle.

What did Mr. Joseph E. Wing say in a December issue of the *Breeders Gazette*, and who is Mr. Wing?

Mr. Wing is a paid writer—and right worthy is he of his hire—of the *Gazette*, and a practical farmer, a man who in one hour's observation can see more than most men in a week, and can tell you about it in the most beautiful and interesting manner, even though it be so prosaic a subject as an ox eating his morning meal.

Mr. Wing is even now engaged, or was lately so, in travelling through the West and Southwest writing descriptions of the great stock ranches. It is to the interest of Mr. Wing, as well as his employers, not to settle at one blow, as he has done, "the battle of the breeds." This position should be neutral, merely the providers of the battle ground, interested spectators, but not taking sides. To be plainer—the more discussion there is, the more interesting the paper; the more interesting the paper, the greater the number of subscribers; the larger the number of subscribers, the longer list of ads. They should be hands off.

But Mr. Wing in the ebullition of enthusiasm forgot the caution that should have been his, forgot the neutral position of the *Gazette*, and its representatives; and after a visit to a famous ranch, the name of whose owner I forget, said in about these words: "Mr. Blank has come to the conclusion *that the Angus are the best cattle;* he carries 5,000 cattle, and should know. And says farther, "It is my purpose in restocking my own farm to use *Angus bulls.*" C. E. JONES.

Fluvanna Co., Va.

THE DAIRY BREEDS—AYRSHIRE CATTLE.

Editor Southern Planter:

Among the popular dairy breeds, and not much if any behind any of the others in excellence, are the Ayrshires. The county of Ayrshire, their native home, is a large district bordering on the southwest coast of Scotland. Its greatest length is seventy-eight miles, and average breadth about fourteen miles. The general aspect of the country is undulating and hilly, containing a great number of lakes and small streams, The chief rivers are the Ayr, with its tributaries (the Lugar and Doon), the Garnock, Irvine, Girvin, and Stinchar. None of them are more than thirty-five miles long, and would scarcely be called rivers in America.

The climate is moist, but mild and healthful. The soil along the coast is light and sandy, interspersed with deep loam. The most fertile districts are in the centre, where clay predominates. On the east side are extensive moss and moor lands, not fit for cultivation, being generally elevated and barren.

The Ayrshire farms are generally small, averaging less than ninety acres each, and the agriculture previous to 1809 was extremely rude, primitive, and inferior to other parts of Scotland; but since that period there has been a vast improvement by extensive draining, better tillage, and raising superior stock in greater numbers, thereby providing the manure to enrich the farms. More cows are kept in Ayrshire than in any other county in Scotland. Excellent butter and the famous Cheddar cheese are made there.

Among the interesting antiquities to be found in Ayrshire are the ruins of Furnbury Castle, the family seat of Robert Bruce. Near the mouth of Bonnie Doon is the small cottage, where the great lyric poet of Scotland, Robert Burns, was born, and where, before he was sixteen years of age, he composed most of his immortal songs. Here is the old "Alloway Kirk," the ruins of the church where his tipsy hero, Tam O'Shanter, saw the witches holding their midnight revel, as he was on his way home from the tavern, where he had been drinking with his companions; and near by is the bridge over which he made his lucky escape from the mad pursuit of the witches, only losing the old mare's tail, which was caught by one of his foremost pursuers. Not far from here is the monument erected to the memory of Burns in 1825.

Furnaces, iron works, foundries, machine shops, extensive coal mines, and manufacturing establishments, furnish an excellent home market for the agricultural and dairy products of the farmers of Ayrshire.

Next in importance to the ability to raise good crops and dairy products is a near home market for their disposal. When the Dakota farmer sends his wheat to Great Britain to compete with the English and Scotch wheat, he is obliged to pay the cost of transportation more than four thousand miles. It is the same with our butter and cheese sent abroad, the freight is deducted by the consignee before payment is made. No farmers in the world can stand it long to ship away the life blood of their farms and pay the cost of shipping.

The history of the Ayrshire cattle, like the history of savage tribes without a written language, is founded on tradition. There are no authentic records in existence to tell us by whose patient labors and painstaking efforts this excellent dairy breed was built up and their milk-giving capacity developed. The old native breed of the country was rough, coarse, and uncomely, resembling the Highland breed of the present day.

Mr. Aytoun, who wrote a treatise on dairy husban-

dry of Ayrshire in 1826, describes them as "a puny, unshapely race, not superior to those yet met with in the higher districts."

They were mostly of a black color, marked with white on the face, the back, and the flanks; and few of the cows yielded more than one and a half to two gallons of milk in a day, at the height of the milking season, or weighed when fat more than twenty stone [of dressed beef]. In the language of the country, they were called "Bokies," or "Hawkies."

It is stated that as early as 1750 the Earl of Marchmont brought from his estate in Berwickshire a bull and several cows, which he procured of the Bishop of Durham, of the Teesdale or Shorthorn breed, then generally called the "Dutch" by most English breeders, because they had so large an admixture of the Dutch or Holstein blood. It is also stated that others besides the Earl of Marchmont brought in foreign cattle resembling the same race. There is also a tradition that there was an importation of cattle of the Alderney or Jersey breed into Ayrshire, and the tradition has a very strong proof of its verity in the great similarity to be seen between the Jerseys and Ayrshires. Were no such tradition in existence, the trained eye of the cattle breeder would quickly detect the points of resemblance, and be ready to affirm that the blood of the one had been mingled with the blood of the other, and that the proportion of Jersey blood was large, if it did not predominate. In the general resemblance of form, in the color of the skin and shape of the horns, a Jersey might easily be taken for an Ayrshire.

The cattle themselves furnish the strongest proof possible that the present dairy breed of Ayrshire was formed by a strong admixture of Shorthorns and Jerseys with the native cattle of the country.

The modern cattle of Ayrshire are thus described by Prof. Lowe: They stand in the fourth or fifth class of British breeds in respect to size; the horns are small and curve inward at the extremity like Alderneys; the shoulders are light, and the loins are very broad and deep, which is a conformation most always accompanying the property of yielding abundant milk. The skin is moderately soft to the touch, and of an average yellow tinge, which appears about the eyes and on the mamæ. The prevailing color is reddish brown, mixed with more or less white. The muzzle is usually dark, though often it is flesh colored. The limbs are slender, the neck is small, and the head is free from coarseness. The muscles of the inside of the thigh, technically called the "twist," are thin, and the haunch frequently drops much to the rump, a character which exists likewise in the Alderney breed, and which, though it impairs the symmetry of the animal, is not regarded as inconsistent with the faculty of secreting milk. The udders are moderately large, without being flaccid. The cows are very gentle, docile, and hardy to the degree of bearing to subsist on ordinary food. They give a large quantity of milk in proportion to their size and food consumed, and their milk is of excellent quality.

The Ayrshire cow, Alice Douglass, had a record of 407½ pounds of milk in seven days. From February 10th to August 6th, 1886, she gave 8,250 pounds of milk. When four months in milk, she made a record of ten pounds and twelve ounces of butter in seven days. Ayrshire cattle were first imported into the United States in 1830. J. W. INGHAM.

RED POLLS.

Editor Southern Planter:

In the February number I notice you recommend Herefords as the breed of cattle suited for the South, also Red Polls, but the latter in a half-hearted way. Now I think the Angus and the Devon each superior to the Hereford, and I believe the Red Poll superior to all three, for which I will give you my reasons.

The fashion is changing as regards the size of beef cattle, as well as the age when it is most profitable to sell. The size demanded is from 1,000 to 1,250 or 1,300 pounds, and the age from 20 to 24 months. Herefords when in condition are apt to be a good deal heavier than this, and it will require from 25 to 30 per cent. more food for a Hereford than for a Red Poll.

The latter lay the flesh on just as well as the former, and I feel sure are far better able to hustle for themselves on the poor pastures of the South.

Herefords and Devons both have horns and are necessarily fiercer than Polls—they are gentleness itself. The Angus has the reputation for being able to get his living where a sheep can, but with his heavy coat he would suffer in our summers.

The Red Poll has no superior for taking on flesh economically, nor does any beef bring a higher price in the market, while for butter the Poll is only inferior to the Jersey and Guernsey, the skim-milk being much superior.

Not long since the Red Polls carried off the prize in England for milk and beef at the same time, which so far as I am informed, has never been done by any other breed.

They will not yet do for the far West, for a Poll cannot defend her calf against wolves and lions, but east of the Mississippi I believe they are destined to take the lead. The only breed likely to compete successfully with them is, in my opinion, the Devon, and they will be handicapped by their horns and by their inferiority in size, both as beef cattle and as milkers.

These are my convictions, but, of course, I do not pretend to speak *ex cathedra*.

ERNEST NORFLEET,
Surgeon U. S. N. (Retired.)

Arizona.

The Poultry Yard.

BARRED PLYMOUTH ROCKS.

As Mated and Bred at the Ivanhoe Poultry Yard.

Editor Southern Planter:

Much has been written on the subject of the single and double mating systems for Barred Plymouth Rocks. We have been very successful with the double mating system, while with the single mating we have produced a few good birds, but not many fine ones.

With the double mating system, we produce a large per cent. of good birds, about fifteen per cent. of them being good show birds. The only culls that we get are the birds with crooked combs, and a few that have white in the earlobes.

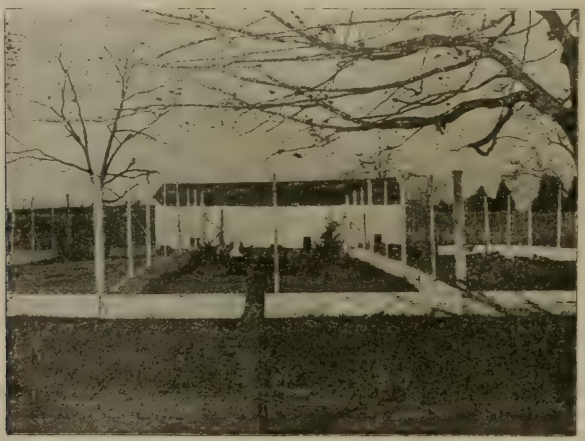
To produce cockerels, we use a medium dark male bird, a little darker than standard color, free from glaze or metallic lustre on the back. He should have a well-curved tail, not too upright, a deep well rounded breast, good broad back, and should be standard weight or over.

To this sort of male should be mated females a little darker than standard or exhibition color. They should be free from smutty appearance or smoky color in the plumage, and must be deeply barred; the deeper the bars extend into the under-color the better, and should have as clear a beak as possible. In shape, they should have a medium short back, well-rounded breast, and a prominent tail. The body should be carried well forward of the legs.

Such a mating should produce a good percentage of medium dark, evenly barred cockerels. Save the lightest and most evenly barred pullets from this mating to use as breeders the next season.

For pullet-mating, use a light even-colored male, as free from brass as possible. The barring must show strongly in the wings, and run well into the under-color of the back. The bird should have a long, broad back, short well spread tail, and medium short legs.

To such a male, mate females that are of standard color, or lighter, one that is as deeply barred as possible on the back and breast. The feathers should end with a dark bar if you expect to get good pullets. The female should have a long back, with a slight cushion to relieve the stiff appearance of the tail feathers, well-rounded breast, and medium length of leg.



ONE OF THE BARRED PLYMOUTH ROCK BREEDING HOUSES AT IVANHOE POULTRY YARDS.

It is to be supposed that you will pick out birds with as good combs as possible. We prefer a low comb, with five distinct points for the male, and as good a comb for the female as we can get. It is hard to get good combs in females. Avoid using females for breeders that have twisted or crooked combs, as this defect will nearly always reproduce itself.

We have followed the above plan, and feel sure that it has improved our birds to a large degree, and have our breeding yards mated on that line this year.

Should any readers of the *Planter* happen to drop in the old capital, we would be pleased to have them call. Our yards are situated about one quarter of a mile from the street car line, on the Cary street road, west of the city.

IVANHOE POULTRY YARDS.

SUGGESTIVE THOUGHTS.

Editor Southern Planter:

In breeding for "points" in all stock, its usefulness has in a measure been sacrificed. This is pre eminently true in the poultry world. That, for the sake of a feather, the bird's best qualities—those of egg production and meat—should have been made secondary considerations, is to be regretted. That a few are awakening to this erroneous practice is a matter for congratulation and hope for the future. To make money is the object of most persons engaged in business. This cannot be accomplished in the poultry yard if the vigor and health of the bird and its attendant usefulness is overlooked or sacrificed to please the fancy. There is a golden mean between the extremes that should be the object of every breeder. Neither the "fancy" nor the "utility" should be sacrificed, but a happy and harmonious blending of the two. "Like produces like" is a law of nature, and a careful selection of the *best*, both as to "points" and "utility," can be expected to reproduce its kind. No one is in a better position than the farmer to so blend these two things, for having selected the breed of his choice, it is certain that with free range and proper attention, he can expect vigorous constitutions and the best results from his fowls. Now, let him note his most prolific layers—his busy hens—and when the proper time comes dispose of all his *drones*, select for his own flock those that reach nearest the *standard*, and introduce from well-known strains *new blood*, so as to avoid any deterioration in his flocks, and it will not be long before the blending of usefulness and fancy will have become an established fact. In disposing of his *culls* let them go to market as dressed fowls. Never send them alive. When sent alive there are unscrupulous parties who will not hesitate to buy them for breeding purposes, and you may awake some fine day to find your strain of fowls advertised by parties you know not of. Kill the cull and keep temptation away from this class of buyers.

Mrs. Payne, in her article in the March issue, strikes a keynote when she pleads (?) for *honesty*. And who knows what a serious set back is given and has been given to the interests of thoroughbred poultry by just such dishonesty as that alluded to in the above paragraph. It is most assuredly a dishonest practice to pass off on the unsophisticated or the beginner the cullings from your own flock, and yet such practices are but too common. There is, however, another side to this dishonest practice—that of the buyer who wants the best stock obtainable at open market or butchers' prices. The care, experience and labor of years go for nothing. For honest dealing there must be a willingness on the part of both buyer and seller to give value received. Should the seller obtain more, he defrauds the buyer; should the buyer give less, he defrauds the seller. Let the seller demand fair prices and give value received at all times, and let the buyer realize that he is getting "his money's worth," and the relations of business will be established on a permanent basis. It is a sad commentary on man that a great many of them do business on the principle that "a sucker is born every day in the year."

Powhatan Co., Va. J. H. SLEDD.

THE BRONZE TURKEY.

Editor Southern Planter:

I believe the Mammoth Bronze Turkey is the best of all the different breeds. It is hardier, more beautiful in plumage, more readily sold, and, as is shown in the following record of standard weights, the largest.

The standard weights are as follows:

	Bronze.	Narragansett.	Buff.	White Holland.
Adult cock...	35 lbs.	32 lbs.	27 lbs.	26 lbs.
Young cock..	24 "	22 "	18 "	16 "
Adult hen...	22 "	22 "	18 "	16 "
Young hen...	15 "	14 "	12 "	10 "

In proof that Bronze turkeys sell readily, I give my own experience. Last season, advertising only in the *Planter*, I sold about fifty at from $2.50 to $3.50 each, for young ones, and over one hundred eggs at twenty-seven and a half cents apiece, and could have sold a great many more if I had had them. This year I am keeping enough hens to supply all the orders I get.

In raising turkeys it is a great mistake to keep the young ones up more than two or three days after hatched, but they should be fed eight or ten times a day and watched carefully after turned out.

My turkeys lay two or three settings of eggs a year. Last year, one of the hens that had young turkeys with her, laid twenty-three eggs before her young ones were six weeks old, and another laid fourteen eggs within four weeks after her chicks were hatched.

My young gobblers now weigh twenty odd pounds, and my young hens from sixteen to twenty.

The old saying, "Like begets like," holds true in the breeding of turkeys. If your hens are poorly bred and small, and your gobbler like the one Job was said to have had—"So poor that he had but one feather in his tail, and had to lean against the fence to gobble"—if you think you are going to raise good birds from such stock you are sadly mistaken. Select heavy-built, broad-shouldered, bright eyed females, with firm legs that stand well apart and with the gen-

eral characteristics of a strong bird. Mate them with a pure bred "Bronze gobbler"—a fine, large, well-formed, war like looking fellow, with enough life and strength in him to make the other occupants of the barn-yard quake with fear when they hear his lordly strut. Having thus selected your breeding birds, you have made a good start toward success.

One gobbler is sufficient for as many as thirty five hens, but two should be kept in case one dies or proves deficient in any other way.

The American standard of excellence gives the following scale of points for turkeys, by which judges determine the qualifications of exhibition birds:

Symmetry, 10; weight, 30; condition, 10; head, 5; wattle, 5; neck, 5; back, 7; breast and body, 10; wings, 8; tail, 5; legs, 5—total, 100

SAMUEL B. WOODS, JR.

Albemarle Co., Va.

RAISING TURKEYS.

Editor Southern Planter:

After the little chicks are a day and a night old I give each a grain of black pepper and a piece of lard the size of a pea, this is good tonic. Then I put them in a basket and keep in the house until they learn the difference between something to eat and the side of the basket. I generally tie a spoon to the side of the basket, letting the bowl fall to a convenient height, not too low, a turkey usually gazes upward, and from time to time I go to the basket and talk to them until they learn to come and eat when I call. I can do nothing with them if I put them at once with the old one. I keep the hen up a week or ten days, until the little ones are strong enough to follow. I feed them four or five times daily for eight or ten weeks, then three times until they stray so far that I cannot find them at midday. Feed is curds mixed in meal dough, made with sweet milk and a little lard, cracklings or any convenient shortening, without salt, stirred in—this is fed raw. I have never fed bread, it is too troublesome; scraps of flour bread that are useless I sometimes work in sweet milk and give them, this they relish keenly. Onion tops cut fine I give for a month, broad leaf dock is also good and chick weed, but not necessary, as they get that themselves. Give plenty of wheat. Last season my turkeys got no care from the middle of August until November. I lost fewer than usual, and raised a larger flock than I ever did, but they were small, too many together, I think. I teach them to eat corn as soon as I can, and consider them safe when they can eat it. Kerosene and lard, very little of former, is best for insects—rub well in wings when the pin feathers start, and on head and throat and grease the old hen well.

Caroline Co., Va. D. B. WASHINGTON.

HEN NESTS.

I use *woven wire hen nests*, and with great satisfaction. Vermin cannot collect in them, or if they do, just turn the nest over, dip in scalding water, and "there you are."

I do not set hens in the hen house, but in "layers" outside. In *cold* weather, as the nests are open, I place a piece of newspaper in the bottom first, then use pine shatters. The nests are $2 a dozen, Japanned, and will last for years. J.

Wachapreague Island, Va.

HENS AND BROODS.

The hens will now commence to become broody and eggs will be given them in order to have them bring off early chicks. But how many of these chicks will be raised is another matter. Those who allow their hens to lose time at incubation should not be satisfied to have them raise only one-third of the chicks, as is usually the case. The cause of the great loss among the little chicks (and not over 30 per cent. of them ever live beyond the first two weeks) is the dependence placed upon the hen. A hen can raise chicks in May and the summer months when the weather is warm, but she cannot be successful in March and April without assistance. She cannot hover her brood in a manner to prevent the chicks from being chilled, and it is only after the weaker ones have perished that she keeps the others alive. It is the "survival of the fittest," and that, too, under hardships and difficulties. Provide a warm and sheltered place for the hens and broods and look after them carefully. It will pay to save the early chicks, as they bring the highest prices.—*Poultry Keeper.*

NESTS FOR SITTERS.

If hens are allowed to set during the cold weather the nests must not only be composed of warm material, but the boxes must be in a warm location or injury will result to the eggs and embryo chicks when the hens come off to eat. Sometimes the hens will have to stand quite a severe temperature, but when a hen is compelled to warm a dozen ice-cold eggs with her body she suffers an infliction which nothing but a bird will endure. The warmer the nests the slower the eggs will give off heat when exposed and the less difficulty is encountered by the hen in warming them. —*Poultry Keeper.*

EARLY LICE.

The lice will put in an appearance before the early pullets begin to lay in the spring, and by the time the farmer is aware of the fact he will have his poultry house well stocked with a large army of the depredators ready to operate on the hens. The way to prevent lice is to fight them early. Never let them get possession. Get a hand sprayer and spray the house once a week, and do not miss a single square inch, giving the fences a spraying also. Use the kerosene emulsion.

The Horse.

NOTES.

Since the revival in demand and decided increase in values all over the country, breeders have found encouragement to commence active operations again. A firm advocate of the light harness horse, and a liberal patron and buyer for years past, Mr. John L. Roper, the big lumber merchant of Norfolk, and owner of the Foxhall Farm, near that city, was among the first of Virginia breeders to recognize the change. Greatstakes, 2:20, a bay horse, by Billy Thornhill, 2:24, out of Sweetstakes, by Sweepstakes, heads the farm, while his stud duties are shared by Foxhall McGregor, a three year old son of the grand race horse, Robert McGregor, 2:17¼, and Cleo, 2:19¼, by Gambetta. Mr. F. Covington, who directs affairs at the farm, regards Foxhall McGregor, who is a rich bay in color, well formed and handsome, as a great prospect for speed and race horse quality. The brood mare band is a choice one, and their vigorous, healthy condition reflects credit upon Mr. Covington's management. Among them are the aged chestnut mare, Sweetstakes, the dam of Greatstakes; Jesse Stamboul, the dam of Clesimtay, 2:17¼, an exquisitely bred bay mare by Stamboul, 2:07¼, out of Astrione, sister to Iona, 2:17¼, by Alcyone, second dam famous old Jessie Pepper; Lady Kenton, a black mare by Hambletonian Mambrino, out of Our Mary, the grand dam of Town Lady, 2:11¼, by Lelaps, thoroughbred son of imp. Leamington, and next dam old Sophie, the grand dam of Nancy Hanks, 2:04; Princess Kenton, a three year old chestnut filly by Greatstakes, out of Lady Kenton; in foal to Foxhall McGregor; S. E. S. Frances, 2:25½, a shapely black mare by Muscovite, out of Venus, by Conger, who is also in foal to the McGregor colt, and Minie, a very speedy bay mare, by Eagle Bird, out of Cleta Wilkes, by Wilkes Boy; in foal to the great sire Allerton, 2:09¼.

Not since the decline in values began in the early nineties, which continued until devastation and ruin were spread broadcast among breeders and owners of all classes of horses, has the outlook in the horse world been so bright as now. In fact, the demand for really good specimens of all grades exceeds the supply, and buyers travelling about the country in search of certain classes of horses find it no easy matter to obtain desirable offerings. This applies especially to coachers and heavy weight horses, preferably the get of thoroughbred sires, suitable for hunters and jumpers. Farmers and breeders in general can make no mistake in mating good mares with the most desirable stallions within reach; the greatest care, however, should be exercised in the class of mares bred, particular attention being paid to soundness and conformation, while defects of temper as well as constitution are not to be lost sight of. Of course the same care should be exercised in the choice of stallions. An important consideration, by no means to be overlooked, is size, which is a prime factor, especially when combined with finish and good looks.

To show the value of the *Planter* as an advertising medium, the following instance is cited: Not long since, having been requested by a patron to purchase a Hackney stallion, I wrote Mr. T. O. Sandy, the well known breeder of Holstein cattle and other improved breeds of live stock, Burkeville, Va., for a price on The Duke, a notice of whom appears in our advertising columns, and his reply was, "The Duke is not for sale. Already quite a number of mares have been booked to him, and I think he will have about as much as he can do. The notice of him in the *Planter* has called forth a large number of enquiries, for which I beg to return thanks."

There are a greater number of horses in training at the Driving Park, Norfolk, Va., than ever before, among them being some very fast trotters and pacers, both with and without records. The annual spring meeting will begin on May 15th, and last four days, when purses of the uniform value of $500 each will be offered for trotters and pacers. John Mariner, the principal owner and financial backer of the Association, who has campaigned horses for years, has a strong stable in charge of Charles Atkinson, who trained and drove for him in 1895 and 1899. By the record, the fastest member of the stable is the brown mare, Kitty R., 2:08¼, pacing. Among others with records are Walter S., 2:12½; Wilton Boy, 2:14¼, pacing; Miss Grace, 2:15½, pacing; Irene, 2:18½; Noval M., 2:19¼, and Too Soon, 2:29¼, by Allerton.

John Seeley, the developer of Joe Patchen, 2:01¼, who trains for Judge J. D. Yeomans, of Iowa, has eight head, among them Ahead, 2:15½, pacing; Ainsworth, 2:08¾, pacing; Frank Patchen, 2:16½, pacing, a son of the "Iron Horse" Joe Patchen, and five others. W. E. Foster, who hails from Bradford, Penn., has a stable of fast ones, among them Brooker, 2:16½; Sapphire, 2:17½, and five others. In addition to these are several local trainers quartered at the track, among them Colin Steel, who has a dozen or more trotters and pacers in his stable.

Mr. E. T. Cox, of the Hundred Farm, Bermuda Hundreds, Va., and owner of Judge Cox; Lalla Anderson, 2:23½, and other trotters, who was severely injured recently by a kick from a horse, is improving. Mr. Cox was operated on, and is now at the Old Dominion Hospital in this city.

Mr. H. G. Herring, of Harrisonburg, Va., has leased from James R. and Foxhall P. Keene, of the Castleton Stud, Lexington, Ky., the grand looking thoroughbred stallion Chorister, son of Falsetto and Addie C., by King Alfonso, and will use him as a sire of hunters. Chorister is 16:2 in height, and weighs 1,400 pounds.

Dr. F. E. Williams, a popular and well-known physician of Pope, Southampton county, Va., has recently purchased, and is using as a driving and pleasure horse the bay stallion Whalebone, a son of Abdallah Wilkes and Maggie O., by Abdallah, 15.

BROAD ROCK.

Miscellaneous.

THE PRICE OF FERTILIZERS.

Having received numerous letters from subscribers complaining of an advance in price of commercial fertilizers, and attributing such increase in price to the combination of the largest Southern fertilizer makers into the Virginia Carolina Chemical Company, we decided to investigate the matter and state the facts as we found them. We also had complaint that Virginia farmers were being discriminated against in the matter of price, as compared with farmers in adjoining States. This matter we also decided to investigate. To obtain the facts, we applied directly to Mr. Morgan, the President of the Virginia Carolina Company, and he at once offered to place before us not only his statement of facts, but the evidence from the private papers of the concern, upon which his statement was based. We availed ourselves of his offer, and now place before our readers a statement which we believe to be wholly reliable. This statement shows that the price of fertilizers is higher than it was a year ago, but it also shows conclusively that such increased price is in no way caused by any action of the Virginia Carolina Chemical Company, or by the existence of any combination between manufacturers. It is strictly the result of higher prices of raw materials required in the making of fertilizers, over the price of which the Virginia Carolina Chemical Company has no control, but which it is compelled to buy in the open market.

Mr. Morgan thus states the case:

"Acid phosphate being one of the principal ingredients in all complete fertilizers, I desire to show here how much this article costs to make in excess of the cost price for the same thing last year. The advance in pyrites, from which sulphuric acid is made, is more than $2 per ton over last year. The advance in nitrate of soda, which is a necessary ingredient in the manufacture of sulphuric acid, is fully $8 per ton more than last year. Phosphate rock has advanced a minimum of $1.75 per ton at the mines, and in some grades of rock the advance is more than $3 per ton. These three articles constitute what is necessary to make acid phosphate. Put them together in the proper proportion, and a ton of acid phosphate will cost $2.07 per ton more than it did last year.

Bags are costing us 20 cents per ton more than they did last year, so that the crude material going into a ton of acid phosphate is costing approximately $2.27 more than it did a year ago.

Every piece of factory supplies and machinery, coal, and everything necessary to operate a factory, is from 25 to 100 per cent. higher than it was a year ago. This will add certainly an additional 10 cents to the cost of a ton of fertilizer, making, in the most conservative and reasonable estimate possible, a ton of 13 per cent. acid phosphate, bagged and ready for shipment, cost the manufacturer $2.37 more than it did twelve months ago.

Now let us look at complete ammoniated fertilizers. We will take what is commonly known as standard grade of complete fertilizer, running, say 2½ per cent. of ammonia, 8 per cent. of available phosphoric acid, and 1 per cent. of potash. As I have above demonstrated, acid phosphate costs $2.07 more than last year. This is equivalent to a little more than 10 cents per 100 pounds. In making the 2½, 8 and 1 fertilizers, 1,200 pounds of acid phosphate would be necessary, so at 10 cents additional cost per 100 pounds, the additional cost for acid phosphate would be $1.20.

If cotton seed meal was used for the ammonia, it would take approximately 700 pounds, and cotton seed meal is now worth $6 per ton more than last year, which is equivalent to 30 cents per 100 pounds, and 700 pounds would cost $2.10 more than it did last year. Now add 20 cents for extra cost for the bags and you have $3.50 per ton more for the materials than we paid for these same materials last year.

If tankage or blood was used for the source of ammonia, instead of cotton seed meal, the advanced cost over last year would be $3.20 per ton, as ammonia from tankage or blood is now 60 cents per unit higher than last year, so for 2½ per cent. of ammonia the extra cost over last year would be $1.80.

Sulphate of ammonia is the only other source of ammonia commonly used in the manufacture of fertilizers. Twelve months ago this article was selling at about $43 per ton. We paid for it this week $62 per ton

Now, I assert that the price of fertilizers has not advanced nearly so much as the price of raw materials going into them. Let us see who is to blame, if any one, for the advance of these crude materials. Take pyrites: We buy from Spain more than three-fourths of all we use. Nitrate of soda: We buy entirely from South America. Potash salts: We buy entirely from Germany. So it cannot be said that our company controls or is in any wise responsible for the advance of these materials, as we have no interest whatever in any of these properties, either directly or indirectly.

Take phosphate rock: We do mine a small proportion of our wants of phosphate rock, but we mine none for sale, and we buy from other mines more than two thirds of what we consume. So no one will suppose that we were anxious to put up the price of phosphate rock.

As for cotton seed meal, we have no interest, either directly or indirectly, in any cotton seed oil mill, so we are not responsible for the advance in this article. Blood and tankage are made by the large packers in the West, and we have no interest and no control over these products in any way."

Upon the question of discrimination against Virginia farmers, Mr. Morgan placed before us the private wholesale prices of the Company to its agents, with the terms of sale both for this State and for adjoining States. We satisfied ourselves from these that there was no discrimination whatever in favor of any one anywhere, but a uniform price and uniform terms to all. The only factor which could affect the terms on which agents could sell, was that of freight rates, which, of course, is affected by the locality. In some places water carriage is available, and this, as is well known, has often a considerable bearing. The Company, however, has done what it could to minimize this by securing a uniform rate over the railroads covering a large part of its territory. If agents are selling upon terms more onerous to Virginia farmers than other agents are selling to farmers elsewhere, it is their own act and not that of the manufacturers, and they only should be blamed.

It appears that similar complaints to those which have reached us have been made in North Carolina. The Department of Agriculture of that State has, through its Chemist and Commissioner, made a full and independent investigation, and the conclusion

arrived at is that "the raw materials which the manufacturers has to buy have advanced quite as much, proportionately, as the price of fertilizers." This finding thus corroborates the result of our investigation and the statement of Mr. Morgan. Fertilizers are higher in price, because all the materials of which they are made cost more in consequence of greater demand and the higher price of labor and other factors going to fix the price at which they can be sold with profit. The same conditions are affecting the price of all the products of the farm which to-day are higher than at any time during the past decade.

POSTAL REFORMS.

We desire strongly to urge upon our readers the importance of writing to their senators and representatives in Congress asking them to support two suggested changes in the postal laws now before Congress. The one of these is the consolidation of third and fourth class matter. At present third class matter (books, circulars, &c., in print) is charged 1 cent for 2 oz. Fourth-class matter (merchandise) is charged 1 cent for each ounce. It is proposed to consolidate the two classes, and charge a rate of 1 cent for 2 oz. This would result in great convenience to country people, as it would enable small parcels of merchandise to be sent by mail which are now sent by express for less than the present charges amount to. One living near an express office can now get a package, say of wearing apparel or dry goods for 25 cents, but if residing distant from an express office the charges by mail are now prohibitive, or at least very burdensome. All the postmasters of first-class offices are in favor of this change, except the postmaster of New York, whilst the express companies oppose it.

The other reform we ask to be supported is that in favor of the extension of free delivery of mail along Star routes. This reform has the support of the Second Assistant Postmaster General, and should be urged on by every resident in the country. If farmers will let their representatives and senators hear from them, both these reforms can be accomplished almost at once.

THE STATE BOARD OF AGRICULTURE.

The Governor has appointed the following gentlemen to be members of the State Board of Agriculture, to serve for four years: Mr. A. O. Mauk, from the Second District; Mr. J. Thos. Goode, from the Fourth District; Major J. T. Cowan, from the Sixth District; Mr. W. H. Eggborn, from the Eighth District, and Mr. Jno. A. Stuart, from the Tenth District.

Mention the *Planter* when you write to advertisers.

THE SUPREME COURT OF APPEALS DECISION IN THE FENCE-LAW CASE.

Editor Southern Planter:

That your readers may understand the case thoroughly, I will endeavor to present it fully, leaving out all redundancy and, as far as possible, technical expressions.

By the common law—that is, by the unwritten law, which obtains in Virginia, except where repealed or modified by the Constitution or Statute law of the State—no man is bound to fence his lands against the cattle of another; but by that law the owner of beasts is bound to restrain them, and is answerable for any trespass which they commit upon the land of another. In other words, the owner of cattle must fence them in—the neighbor is not bound to fence them out.

The question presented for the court to decide was, What changes has the Legislature made in the common law rule?

Upon the part of the land owners of the State, it was insisted that the only alteration made in the common law rule was to provide a more effectual and summary redress for the land owner who had a "lawful fence" against trespassing beasts, than that which existed by virtue of the common law. In the past history of the Commonwealth, various laws had been enacted which altered the common law rule, but it is an acknowledged principle that where a statute which repealed the common law is afterwards itself repealed, the common law is revived.

The Code of Virginia of 1887, which went into effect on the 1st day of May, 1888, completely revised the general laws of this State, and by Section 4202 thereof, all such laws in force at the time of the adoption of the Code were repealed. The first section of the Code of Virginia of 1887, designate these laws as "The Code of Virginia," and then Section 2 declares that the common law shall be the law of this State except where it is or shall be altered by statute. Thus, in order to see whether any statute had altered the common law as to fences, it is only necessary to look to Chapter 93 of the Code of 1887, and the amendments thereof, including an act approved in 1894—Acts 1893-'94, p. 941, the last defining a lawful fence. An examination of the several sections of Chapter 93, and the amendments thereof, will disclose the fact that in but one single instance is the redress of a land owner against trespassing stock expressly taken away, and that is where two counties adjoin, in one of which the county authorities, under the statute of January 26, 1886, or Section 2048 of the Code, or under some special statute had declared the common law rule in force, and in the other that rule was not in force, Section 2050 took away the right of the land owner on the border of the former county to redress for trespassing stock, unless he had a lawful fence. As an illustration, and to explain this provision of Section 2050, let us take the adjacent counties of Louisa and Goochland. In the latter the common law rule prevails, and every man, at his peril, must keep his stock off his neighbor's crops. In the former the common law does not prevail, and every shiftless squatter in a hut on the road side may let his worthless harridan and "razor-back" run at large and destroy his thrifty neighbors' crops. This Section 2050, if it is law, would require the Goochland farmer living on the border to fence his stock and keep them off his Gooch-

land neighbor, and as he could not wilfully turn them upon his Louisa neighbor, he must keep them fenced, but the stock of the Louisa squatter may trespass on the land of the citizen of Goochland and the latter would have no redress whatever, unless he had a lawful fence. This, I repeat, is the only instance in which any statute expressly takes away the common law right of redress for trespassing stock. If such redress is elsewhere taken away, it can only be by implication; and the repeal of the common law is never favored; it can only be annulled by express legislation or by *necessary* implication. Our statutes present no such case except in the instance above mentioned; but, on the other hand, give *additional* redress to the land owner when he has, *in addition to* his ideal and invisible boundary which is his common law fence, the barrier which is called in statutory parlance, "a lawful fence."

It had been urged before the court by counsel, that the common law of England in this particular had been abrogated because it was not suited to our conditions, which were different from those in England. But our reply was that whatever may have been the conditions in the early settlement of Virginia, that the changed conditions here must, according to all the lights which history can throw upon the subject, at least approximate to those of England, which, when the common law came into existence, was relatively a sparsely settled country; for even as late as the reign of Charles II, it is estimated by some to have been inhabited by only about three millions of people; that our present Court of Appeals in many cases, especially in Foster *vs.* Commonwealth, decided in 1898, has held that "The common law of England, so far as not repugnant to the Bill of Rights and Constitution of this State, or has not been modified by our written law, is in full force in this State, and constitutes the rule of decision on all subjects" The court, speaking through that able and accomplished jurist, Judge Rieley, then quotes, with approval, this language in regard to the common law: "*Whose peculiar beauty is that it adapts itself to the rights of the parties under every change of circumstances.*"

That the time has come when a change of circumstances demands a restoration of the common law, is exhibited by the fact that, in a large number of the most progressive counties in Virginia, upon the imperative needs of the farmers, and despite the white squatter and colored vote, the common law rule has been restored.

Let us see what is the decision of the Supreme Court of Appeals, and whether the court has satisfactorily responded to the issues presented for its consideration, and whether its reasoning is such as to convince us that the decision is right. The opinion was delivered by Judge Harrison. As I shall exercise the privilege, which is regarded as the last possessed by the defeated counsel, of criticizing the opinion, I wish it understood that I have the highest regard for the learning, character and ability of Judge Harrison.

The conclusion he first reaches is that the general fence law of Virginia is now to be found in Chapter 93 of the Code, and the act of 1893–94, above referred to, which is identical with Section 2038, and defines a lawful fence. He confesses, however, his inability to explain why the Legislature in 1897–'98, should have re-enacted this section, defining a lawful fence; but he fails to regard or allude to the authorities cited in our argument before the court, showing that the last amendment superseded all laws on the subject, and that, by a plain piece of carelessness on the part of the Legislature, it was limited in its effect to the county of Accomac. No authority whatever is vouchsafed, to indicate why these cited by us are not applicable.

He next recites our contention, that the sections of Chapter 93 of the Code do not take away, but add to the common law redress of the land owner for trespassing cattle, where he has a lawful fence, touches slightly upon the earlier statutes upon the subject, briefly alludes to the act of 1893–'94, defining a lawful fence, Section 2042, giving the additional redress, and Section 2048, providing how the Board of Supervisors may declare boundary lines a lawful fence, and without attempting to point out the section or provisions which justify his conclusion, contents himself with a summary dismissal of the matter by saying: "It is sufficient to say that the rule of the common law, which requires the owner of animals to keep them on his own land or within enclosures, is not in force in Virginia, being inconsistent with the legislation of the State touching the subject of enclosures and certain trespasses, except in those counties where the Boards of Supervisors have acted under Section 2048, as amended, and adopted what is commonly known as the "No fence law;" the common law being restored in the localities where such action has been taken."

The singular incorrectness of this statement of the law is so apparent, that surely the learned judge would hasten to correct it should his attention be called to the error.

If this statement is to be accepted as law, then what is to become of those counties where, under the act of January 26, 1866, the common law rule had been restored before there was any such thing as a Board of Supervisors, as well as in those counties in which the common law rule had been restored by special enactments? Section 2060 of the Code expressly continues in force the law as it existed in such counties on the day before the Code took effect; yet the learned Judge declares that only such counties are excepted where Boards of Supervisors have acted under Section 2048. The effect of this declaration, if accepted as law, would be to throw open as common all lands not enclosed by "a lawful fence" in those counties where the Boards of Supervisors have failed to act under Section 2048.

Of course, it will be held that this is but an *obiter dictum*, or a slip, and not the law, should the court ever be called upon to pass upon this language; but it shows how superficial was the examination made by the court in this important case, and how loosely it was disposed of, all the more to be regretted since the case was made up solely to test this matter of such vital importance to the farmers of Virginia, and which should have commanded a more painstaking, and thorough examination and deliverance.

The question as to the constitutionality of the law requiring a man to erect a costly fence as a condition precedent to his right to require his neighbor to keep his stock from trespassing, is likewise affirmed with scant consideration. The reasons assigned are twofold, viz: First, because the constitutionality of such laws had never before been questioned in the courts of

this State; and, second, because similar laws had been declared constitutional in Kentucky, Indiana, Navada and Oregon; and also cites in support of this doctrine, a case in the United States Supreme Court, *R. R. Co.* vs. *Emmons.*

I have only examined the last mentioned case. That case does not sustain the contention. It simply involved the propriety of requiring a railroad company in Minesota to fence its track, and the requirement was upheld as a proper exercise of the police power of the State for the safety of the passengers and employees of the railroad company. The distinction between that and the case at bar is manifest, even to a lay mind of ordinary intelligence. Upon the other hand, courts as high as the New York Supreme Court and Court of Appeals, and a jurist as able and distinguished as Judge Cowen, of that State, have held such laws unconstitutional. The court, in the principal case, does not attempt to meet the argument of Judge Cowen, or even allude to it.

There were several important questions presented to the court to which it makes no response; but the opinion concludes with the declaration that while the statutes do not require the owner of cattle to restrain them from "*passing of their own accord upon the unfenced land of another, they give him no authority to drive them there, and if he do so, he is answerable for whatever damage they may do while there.*"

It follows from this decision, as a necessary corollary, that before a man can turn out his cattle and hogs he must have some land upon which to turn them. As the public does not own the public roads, but are only entitled to use the way for passage, and the grass. trees, minerals, &c., belong to the adjacent land owner, no person not owning the land on the road has a right to turn his stock in the road to pasture. If he do so he is liable for all the damage they may commit. If a man owns only an enclosed lot, he has no right to turn his stock out of that lot, whether on the public road or elsewhere. Furthermore, as the law lends a countenance to no trick, subterfuge or knavery, and does not permit one to accomplish by indirection what he cannot do directly, it follows that if a man turns his stock on his own lot knowing that they cannot exist there, but must of necessity go upon his neighbor's land, this evasion would, doubtless, be regarded as a wilful trespass.

Such are some of the deductions to be drawn from this hasty and ill considered decision, in which, to use the language of a distinguished lawyer, "the court decided not upon property right, nor principle of law, but a long standing and popular custom."

Goochland Co., Va. A. K. LEAKE.

THE FENCE LAWS OF VIRGINIA.

Editor Southern Planter:

The decision of the Court of Appeals on the validity of our present fence laws throws the farmers of Virginia on to their own resources and the tender mercies of the boards of supervisors.

What are we to do? In this county of Louisa, it is a matter of the gravest importance. To go on as we are going is out of the question. We are living in a state of war. On one side, the colored people and some whites, backed up by the supervisors; on the other, farmers, on whom the enemy largely lives. We cannot surround our large farms with a legal fence. many have not the materials; many more have not the money, nor the necessary labor; and even if the fence is built, there is constant annoyance. It is so easy to pull out a bottom rail, or to raise a flood-gate, to let your hogs on to a neighbor's field.

The amount of injury the supervisors have inflicted on this county is incalculable. All of us want to sell our farms, but there are no buyers, for no one knowing our condition would buy. Every immigrant has some influence, and the experience of those living here does not warrant them to recommend their former neighbors in the North, or in England, to come here. For one, I could have influenced a valuable immigration, and so doubtless could others.

Without showing much on the tax list, the colored people are rapidly acquiring control of the land. For instance when I bought my farm, there was not one colored landholder adjoining me. Now there are six, each with a small farm of from ten to forty acres; not one with a pasture lot, but all turn out their stock to forage for a living on other people's land, largely on mine. What is true in my case must be true in many others.

This morning we turned out some cows from a field of winter oats. No remedy, because the fence, although a good fence, is not a legal fence. In this instance, the fence was taken down purposely, but still there is no remedy.

It is not necessary to go over our grievances, for they are too well known. The remedy concerns us.

The county officials are at present out of our reach: They are afraid of the colored and low white vote. A candidate for office called on a relative of mine asking for his vote. To the question, "Are you in favor of a "no fence law?" " he frankly replied, "I am, but you know if I were to say so publicly, I should not be elected." And he told the truth.

If the ignorant class of voters could be disfranchised, we should speedily have boards of supervisors with some regard for the rights of property, and then this unfortunate county would have a chance to show what it could do. Thousands of acres of land would be brought into cultivation that are now idle on account of the roadside hog. Immigrants, with some money, would be invited without mental reservations, and our farms that are steadily depreciating in value would at least hold their own, and, with good management, would appreciate.

But disfranchisement is an extreme measure, and should not be undertaken unless absolutely necessary to our salvation. Let us try other means. Say, "Associations." There should be a Farmers' club in every voting district, whose motto should be "A farm line is a legal fence." The members should pledge themselves to use all means to promote the good of their order. They should vote for no county officer who is not openly an avowed "no fence" man. They should drop politics until their purpose is accomplished. They would be beaten at the polls at first, but would surely win in the end. And what a victory it would be!

GEORGE CLENDON.

Buckner's Station, Va.

Mention the *Planter* to your friends.

MEETING OF THE VIRGINIA STATE BOARD OF AGRICULTURE.

The State Board of Agriculture met on the 20th of March at Ford's Hotel, and was called to order at 11 A. M. by President Julian M. Ruffin. Those present were Messrs. Beverly, Mauk, Ruffin, Goode, Barker, Cowan, Heater, Eggborn, Browning, and Commissioner Koiner. The only member absent was Mr. John A. Stuart, of the Tenth District, and he was detained on account of sickness.

Mr. Ruffin, after a few introductory remarks, called Major J. T. Cowan to the chair, as the first order of business was the election of the presiding officer. Mr. Beverly placed in nomination for president the incumbent, Mr. Julian M. Ruffin. The nomination was heartily seconded by Messrs. Eggborn, Heater, and Koiner, all of whom spoke in the warmest words of praise of the ability and efficiency of the member from the Third District. Mr. Ruffin's re-election was unanimous. Major Cowan then vacated the chair, and Mr. Ruffin, in accepting the presidency, responded in brief, but appropriate remarks.

The board then went into executive session, and after thoroughly considering all of the applications and numerous petitions before them, elected the following fertilizer inspectors to serve until next January:

First District, Dandridge Sale, of Chance, Essex county.

Second District, J. H. Madison, of Denbigh, Warwick county.

Third District, C. L. Turner, of Hanover.

Fourth District, T. B. Price, of Lawrenceville, Brunswick county.

Fifth District, J. T. West, of Stuart, Patrick county.

Sixth District, A. O. Sullivan, of Christiansburg, Montgomery county.

Seventh District, E. M. Minnick, of Timberlake, Rockingham county.

Eighth District, W. C. Waite, of Culpeper.

Ninth District, J. W. Williams, of Pearisburg, Giles county.

Tenth District, J. H. Leech, of Shirwood, Rockbridge county.

The board adjourned on the conclusion of the business.

THE MAGOTHY BAY BEAN.

Editor Southern Planter:

This bean mentioned by Mr. C. C. Warner on page 77 of the February *Planter*, is better known as the partridge pea, or botanically as *Cassia chamæcrista.*

It is a common plant in the Southern-Eastern States, and often follows in the wheat stubble. It grows quite luxuriantly on the Eastern Shore of Virginia, and resembles a miniature Mimosa or Acacia.

When I was a child, we used to repeat a rhyme—

"Little Bob White,
Are your peas ripe?"

with an intonation supposed to resemble the quail's note, joining the two first syllables in each line as if one.

In a pastoral I published some time since, I parodied the idea thus:

"The quail's note now is swelling
From out his weedy dwelling;
Hark! listen to his cry:
'Bob White! Bob White! Ah, Bob White!'
Your Chamæcrista isn't ripe,
When the corn's laid by."

When an Easternshoreman wishes to express the length of the Virginia peninsula, he does not say from "John O'Groat's to Land's End," but "from Horntown to Magothy Bay"—the latter being near the extreme point inside the outlying islands. I have never been able to trace the connection of the bean and the bay. The bean or pea belongs to the natural order Leguminosæ, sub order, Papilonicæ, and is a nitrogen-producing plant.

GEORGE C. HENNING.

GRAFTING WAX.

Good grafting wax is as easy to make as mud pies, if the right kind of materials are used in proper proportions. I always guess at mine and have never missed it yet, but the sure way is to weigh the materials. I make two kinds, according to what ingredients I have the handiest. Here they are, and I think one as good the other: The wax will be a little stiff for use in very cool weather, but a pot of coals or warm water may be taken along to warm it. If the wax is made softer it will run off the graft and stock when the warm weather comes. Take four parts of rosin, two parts of beeswax and two parts of tallow. The other is six parts of rosin, one of beeswax and one of linseed oil. Whichever is used put the materials in a pot and melt them thoroughly. Stir well for five minutes. Then pour the mixture into a tub of cold water, using care not to let it stick to the sides or bottom. When it crusts on the outside poke into the center with a stick to cool the inside. As soon as the lump can be handled grease the hands with tallow and pull for ten minutes as in making taffy. Then make it out into balls the size of one's fist, wrap each in greased paper and put away for use. Such wax will keep in any moderately warm place for years without melting down, and be ready for use at any time. Never use lard or other soft grease in making grafting wax.—H. E. VANDEMAN, in *Nat. Stockman.*

HOW THE SOUTH PROGRESSES.

The *Philadelphia Record* calls attention to the following table as indicating the steady growth along agricultural lines:

	1880.
Number of farms	1,726,480
Acres under crops	54,679,145
Value of products	$611,699,145
Number of live stock	39,448,360
Value	$360,066,883
	1898.
Number of farms	2,562,127
Acres under crops	93,611,017
Value of products	$1,006,476,800
Number of live stock	53,211,613
Value	$516,872,714

THE

Southern Planter

PUBLISHED BY

THE SOUTHERN PLANTER PUBLISHING COMP'Y,

RICHMOND, VA.

ISSUED ON 1ST OF EACH MONTH.

J. F. JACKSON,
Editor and General Manager.

B. MORGAN SHEPHERD,
BUSINESS MANAGER.

TERMS FOR ADVERTISING.

Rate card furnished on application.

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The Southern Planter is mailed to subscribers in the United States and Canada at 50c. per annum; all foreign countries and the City of Richmond, 75c.

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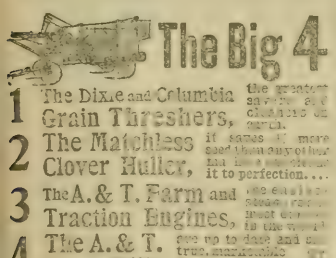
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No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,
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Send for free Illustrated Catalogue and mention this paper.

PUBLISHERS' NOTES.

To Subscribers.

On account of an accident in our mailing room last month, we have had many complaints of the non-receipt of the March issue of the *Planter*. If any of our subscribers have not yet received their copies, on hearing from them we will send same so long as we have any copies on hand. We trust that we shall not again have such a mishap. If at any time the *Planter* fails to reach a subscriber within the first week of the month, kindly drop us a postal-card, so that we may inquire into and remedy the difficulty.

We would ask our friends to make an effort during this month to send us in the names and subscriptions of such of their neighbors and friends as they can induce to subscribe. We have added a large number of new names to our list during the past three months, and are anxious to continue doing so. April is a month which affords many opportunities for seeing your neighbors at the spring courts. Will you not bear the *Planter* in mind at these times and tell your neighbors what a benefit it has been to you during the winter months? If you do so, we are certain that you can send us the names of many new subscribers.

The most satisfactory thing about farming at the close of the century is the ease with which grain can be harvested. The McCormick Company, the oldest and largest manufacturers of harvesting machinery in the world (founded by the inventor of the reaper), make the remarkable statement that the average boy on the farm can operate their machines, which have been perfected to a degree that makes a recreation of what was formerly the most laborious and exacting work on the farm.

The McCormick Right Hand Binder surpassed its own and the world's records last year in volume of sales, and the entire output of the company amounted to the astounding total of 213,629 machines.

Not content with their pre-eminence in the harvester world, the McCormicks have in recent years perfected a practical machine for harvesting corn, the McCor-

Boy's Combination Suit

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Made of strictly all Wool fancy Cassimere—a regular $5.00 garment! Will wear like iron. The patterns are new and nobby, and made up by 1200's most skilled tailors. State age of boy, whether small or large for age; size of cap desired, and enclose us $3.95, and we will ship you the best value you ever saw in a boy's suit; or, if preferred, we will send it to your nearest Express Office, C. O. D., with privilege of examination and trying on, and if not instantly impressed by its appearance, fit and make up, return it at our expense.

Consists of Jacket, Two Pair Pants and a Golf Cap.

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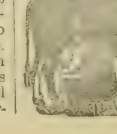
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mick Vertical Corn Binder; and they have also introduced the only moderate-priced Husker and Shredder. The farmer should not forget that the corn fodder of the United States is worth more than our wheat crop, when cut at the right time and shredded.

BUYING TO ADVANTAGE.

Half the success of the farmer who conducts his farm in a business-like manner consists in judicious buying. A man may make a big profit, but it does him little good if he frittters it away in paying big prices for what he uses. The secret of good buying consists not so much in obtaining a great bargain now and then, but in dealing with a thoroughly reliable house, which is in a position to give you the lowest possible prices for cash. Take for example the Marvin Smith Company, 55-59 Jefferson Street, Chicago. They are offering the readers of the *Southern Planter* vehicles, harness, saddles and agricultural implements of all kinds at prices astonishingly low. They are in a position to do this because they pay no big commissions to agents or dealers whatever, and because they sell in such large quantities. But of greater importance is their offer to ship goods anywhere for examination, allowing the customer to look them over before he pays a single cent. If he is not perfectly satisfied, the company takes the article back, paying freight charges both ways. Send for their handsome catalogue, showing their large line.

WASHING BABY'S FLANNELS.

The dear babies' flannels must be washed more carefully than those of adults, as they are usually more delicate and expensive and need gentle treatment. Use water as hot as your hands can comfortably bear, and put the little flannels in a tub separately from others, and wash them through two hot waters, making the suds of Fairy Soap, with a little Gold Dust Washing Powder added to whiten and soften the texture and finer of the flannel. Rinse in warm water, and pull and stretch each little piece in shape, and hang securely on the line out doors to dry. The work must be done speedily; never let the garments lie a moment longer than necessary.

HOW'S THIS!

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Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price 75c. per bottle. Sold by all druggists. Testimonials free.

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HOW TO BUILD ASK
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POINTS ON WHICH THE MAKERS OF LEAN HARROWS BASE THEIR CLAIMS.

A man who gives all his time and thought to making harrows is pretty sure to make better harrows than one who makes all sorts of tools, and gives no more attention to harrows than to plows or drills. The Lean harrow which a large number of people consider the best one made, is manufactured by a concern which has been in the harrow business, making nothing but harrows, for a quarter of a century. During this time the Lean harrows have steadily grown in popular favor. The points that commend these Lean harrows are their combined strength and lightness, the simplicity of the tooth-adjustment device, the use of steel throughout, and above all, the unusual care exercised in constructing and testing each harrow. The lever by which the teeth are set at any angle is a mechanical triumph of simplicity and strength.



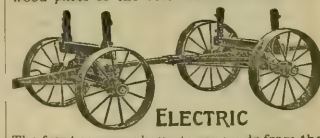
These harrows are used for such a variety of farm and garden work with such good and speedy results, that the claim that they will pay for themselves in a single season is no doubt true in many instances. A circular in which the construction of the Lean harrow is explained and shown by illustrations, can be had by writing to the Roderick Lean Manufacturing Co., Mansfield, Ohio. In comparing the Lean harrow with others, there are features in construction which are very important. The Lean harrow is held together by a steel frame running all around the section. The tooth bars are rounded and shouldered on the ends, and when the corner braces and end bars are tightened up, the shoulders of the tooth bars are drawn up against the side bars, and must remain in place. The teeth are all inside, and as the frame cannot rack, they cannot possibly track.

The day is happily past when the man who lives in the country thinks that a jolt-wagon is good enough for his riding and driving. He now requires, when he goes out on business or pleasure, as good a rig as you will find in the cities, and this is right and commendable, for if any one on earth deserves the good things of life it is the farmer, who has worked so hard to advance the material interests of the country. But in buying a carriage or buggy, it is not necessary to go in debt or to pay the fancy prices that have too often been asked in the past. By buying on a strictly cash basis and by dealing direct with a reliable manufacturer, the farmer can now secure a really first-class piece of work for much less than he formerly paid for an inferior vehicle.

This change has been very largely brought about by the Elkhart Carriage and Harness Manufacturing Co., of Elkhart, Ind., which for twenty-seven years has been manufacturing high-grade vehicles and harness and selling direct to users. Their factory, one of the most

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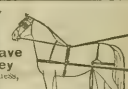
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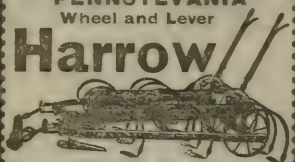
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So constructed as to clear itself of trash readily. May be used in one, two, three or more sections.

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On any ground, in any kind of soil, on hillside or among rocks and stumps, you can cultivate thoroughly and accurately, either deep or shallow by a touch of the hand, with the

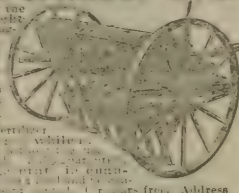


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extensive in the country, has every equipment for turning out fine work at the least cost, but even a great saving is effected by their methods of selling direct. They save all expense of putting men on the road to sell their goods. They save all of the expenses and profits of the dealer, agent and middleman. The purchaser gets the goods at manufacturer's wholesale prices, without anything added for bad debts or middlemen's profits. In most cases this saving amounts to thirty five per cent. or more Do not fail to send for their catalogue.

MAGAZINES.

The April *Century* is rich in pictorial illustration, its special art features including a frontispiece engraved by Cole, a full-page plate of H. O. Tanner's painting, "The Annunciation," Castaigne's Paris pictures, and Dumond's decorative treatment of "The Groves of Pan," a poem by Clarence Urmy. From the "Talks with Napoleon," in this number, it appears that the Emperor was so fully resolved to make his home in America, in the event of defeat at Waterloo, that he had bills drawn upon this country for whatever sums he chose to take. He told Dr. O'Meara that he had "spent sixteen millions of ready money," of his own, before the battle. "I have probably as much money as I shall ever want," he said at St. Helena, "but I do not know exactly where it is." "Fashionable Paris" is brought vividly before the reader by Richard Whiteing's pen and Castaigne's pencil. M. Worth's explanation of how fashions were started, under the Second Empire, is one of the tit bits of this paper. Lovers of travel and adventure will turn to Miss Scidmore's account of "The Greatest Wonder in the Chinese World," the bore of Hang-Chau, a tidal wave that sweeps up the Tsien-tang river thrice every year; to R. Talbot Kelley's "Out-of-the Way Places in Egypt," with illustrations by the author; and to the first instalment of Benjamin Wood's true tale of "The Hardships of a Reptiler," engaged in turtle hunting, for profit, on the Carribean coast of Central America. The same class of readers will be drawn to "The Kentuckian," a timely study of a type, by John Gilmer Speed, a native of Kentucky, and, in some respects a typical representative of the "Blue-grass" State. W. S. Harwood writes of "The Success of the Government Telegraph in England," and Charles Barnard of "The Industrial Revolution the Power-Tool."

The Complete Novel in the "*New Lippincott*" for April is entitled "The Heart of the Ancient Wood" by Charles G. D. Roberts. The few but large-souled human characters in it live in the woods of the North, close to Nature's heart, with the beasts of the forest for their friends. Yet even here the old, old story is very present: the wild surroundings cannot entirely efface the coquetry natural to woman, and there is rivalry of a unique kind to bring this out.

This issue is replete with good Fiction: A Complete Novel and four Short Stories. Seumas McManus has one of his characteristic, humorous Irish stories, calle



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We wish to gain this year 200,000 new customers, and hence offer

1 Pkg.	City Garden Beets,	10c
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1 "	La Crosse Market Lettuce,	10c
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Worth $1.00, for 14 cents.		$1.00

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The Famous Forage Crop and Soil Improvers.

WE ARE HEADQUARTERS for these and all Southern seeds, including Soja Beans, Velvet Beans, Pearl or Cat-tail Millet, Teosinte Bermuda grass, Dwarf Essex Corn, Spanish Peanuts, Chufas, Sorghums, etc.

With 1900 we issue our Seed-listing Catalogue giving full information about these crops.

T. W. WOOD & SONS - Richmond, Va.

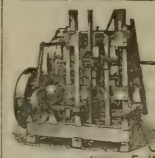
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Positively the standard well drilling machine of America!

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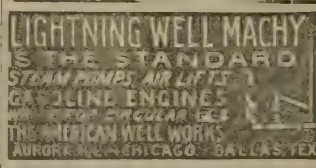


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Complete with belt; been run two seasons, and in first-class order. Will sell cheap.

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"A Celtic Beauty"; "Their Last Trek" is by H. Anderson Bryden, an athletic Englishman, who, having travelled extensively in South Africa, is thoroughly up in his subject, and in this story he presents a touching picture of Boer life. Robert Shackleton writes an amusing sketch of the old South, reflected in New York, in which the "Randolphs of Virginia" are conspicuous characters. "The Alpine Rose," Mrs. J. K. Hudson's fourth story in her series on Mormon life, receives its title from the little mountain flower which is sometimes found on the highest peaks in this country as well as in Switzerland, and which in this instance proves the link that binds an unhappy Morman wife to her old home across the sea.

The Forum has articles on "The New Financial Law," by Frank A. Vanderlip, Assistant Secretary of the Treasury; "The Puerto Rican Relief Bill," by the Hon. A. J. Hopkins; "The Hay-Pauncefote Treaty," by James G. Whiteley; "Immediate Naval Needs," by Captain William Henry Jaques; "Some Things We May Learn From Europe," by Hon. S. J. Barrows; "The Need for Advanced Commercial Education," by H. A. Stimson. These and other articles in the magazine are well deserving of careful reading and thought.

In the *Review of Reviews* for April the methods of industrial training pursued at Hampton Institute, in Virginia, are described by Albert Shaw, whose text is illustrated from a series of forty photographs recently taken by Miss Frances Johnston, of Washington.

"The Great Steel Makers of Pittsburg and the Frick-Carnegie Suit" is the subject of an illustrated article in the April *Review of Reviews*, by Julius Moritzen. The article describes the wonderful development of the steel and coke industries of which Pitsburg is the centre.

Appleton's Popular Science Monthly has an interesting article by W. Flinders Petrie, the famous Egyptologist, in which he gives a popular account of the discoveries made in Egypt during recent years. Professor Heilprin has an article giving an account of the Cape Nome district, in Alaska, which promises to be one of the great gold-producing districts. Mr. Charles A. Parsons writes on "The Rotary Engine, or Steam Turbine," which is now claimed to be an accomplished success.

"A Missionary in the Great West," by Rev. Cyrus Townsend Brady; "The Choir Boys of England," by Julian Ralph; "The Mysteries of the Century," "Singing 'The Messiah' on the Plains," "Behind the Scenes During a Play," "College Girls' Larks and Pranks," give an idea of the varied excellence of the April *Ladies' Home Journal*. Of course, Rudyard Kipling's "Just So" story, "The Elephant's Child," narrating with delightful humor how the elephant got his trunk, will be sought first and heartily enjoyed. Ian Maclaren identifies "The Genteel Tramps in Our Churches." Edward Bok points out the evils of "The

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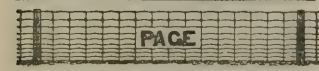


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Ease With Which We Marry," and "An American Mother" writes on "The American Woman in the Market Place." "Bandanna Ballads," by Miss Howard Weeden, and "Fairies in Funnyland," combine rhythmic and artistic beauties. The first of a series of journeys "Through Picturesque America" fills two pages, and "A Successful Country House in New England" and "Wellesley Girls in the Play" are also pictorial features. A fair part of the April Journal is filled with matters of interest to women By The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

Winter lingers in the lap of Spring in the April *St. Nicholas*, in the form of a paper on "Snow Plows," by George E. Walsh, who describes the process of "bucking" a snowdrift on a railroad in Dakota in the days before the rotary steam snow-plow was invented. The description is illustrated from photographs. "A Boy of Galatia" is the winner of an old Olympian race, and the event itself is described with animation by Samuel Scoville, Jr., who has witnessed many a contest of a similar kind, albeit on soil less world-renowned. The story is illustrated by F. V. du Mond, who furnishes the frontispiece, and Andre Castaigne. Tudor Jenks, in "Papa Dragon's Tale," makes his hero sigh for the good old times when men didn't have to be picked out of metal shells before being eaten, as the gallant knights of a later generation did.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Report 63. The Work of the Agricultural Experiment Stations in Tobacco.

Bureau of Animal Industry. Bulletin 24. Notes upon Dairying in California.

Bureau of Animal Industry. Circular 29. Officials, Associations and Educational Institutions connected with the Dairy Interests of the United States.

Division of Botany. Bulletin 23. Russian Cereals Adapted for Cultivation in the United States.

Circular 23. The Lebbek or Siris Tree.

Circular 24. Red Clover Seed.

Division of Entomology. Bulletin 22. Some Miscellaneous Results of the Work of the Division.

Section of Foreign Markets. Bulletin 18. Our Trade with Japan, China and Hong Kong.

Experiment Station Record, Vol. XI, Nos. 6-7.

Farmers' Bulletin 113. The Apple and How to Grow it.

Publications of the Department for sale by Superintendent of Documents.

Idaho Experiment Station, Moscow, Id. Bulletin 21. The Codling Moth.

Kanzas Experiment Station, Manhattan, Kas. Bulletin 92. A New Drouth-Resisting Crop. Soy Beans.

Bulletin 91. Swine Plague.

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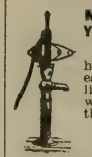


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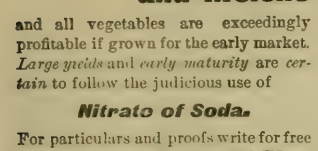
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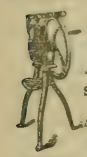
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Arizona Experiment Station, Tucson, Ari. Bulletin 31. Sugar Beet Experiment, 1899.

Cornell Experiment Station, Ithaca, N.Y. Bulletin 178. The Invasion of the Udder by Bacteria.

Bulletin 179. Introduction to Field Experiments with Fertilizers.

Kentucky Experiment Station, Lexington, Ky. Bulletin 84. The Elms and Their Diseases.

Bulletin 85. Commercial Fertilizers.

Louisiana Experiment Station, Baton Rouge, La. Bulletin 58. Analysis of Commercial Fertilizers and Paris Green.

Louisiana State Board of Agriculture. Crop Report.

Maine Experiment Station, Orono, Me Bulletin 57. Experiments with Potatoes.

Maryland Agricultural College, College Park, Md. The College Quarterly.

New Hampshire Experiment Station, Durham, N. H. Bulletin 67. The Spring Elm Caterpillar.

Bulletin 69. The Inspection of Fertilizers.

New York Experiment Station, Geneva, N. Y. Bulletin 162. Injury by Sun Scorching of Foliage.

Bulletin 163. Canker—An Enemy of the Apple.

Bulletin 164. Divers Diseases Discussed.

Bulletin 165. Report of Analyses of Paris Green and other Insecticides.

Bulletin 174. Fumigation of Nursery Stock.

Pennsylvania Experiment Station, State College, Pa. Bulletin 47. Tests of the Sugar Beet in Pennsylvania.

Bulletin 48. Winter vs. Spring Bran.

Virginia State Weather Service, Richmond, Va. Annual Summary, 1899.

Report for February, 1900.

Wisconsin Experiment Station, Madison, Wis. Bulletin 79. Principles of Construction and Maintenance of Country Roads.

Bulletin 80. The Character and Treatment of Swamp or Humus Soil.

Wyoming Experiment Station, Laramie, Wyo. Bulletin 42. Some Native Forage Plants for Alkali Soils.

West Indian Bulletin. The Journal of the Imperial Agricultural Department for the West Indies. Department of Agriculture Barbados, West Indies.

Spraying a necessity. Address before the Lennox Horticultural Society. The Lennox Sprayer Co., Pittsfield, Mass.

Annual Report of the Trustees of the Valentine Museum, Richmond, Va.

CATALOGUES.

Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y. A beautiful Catalogue.

The American Well Works, Aurora, Ill. Pumps and Engines.

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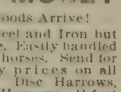
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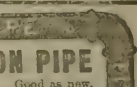
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THE VIRGINIA FIRE & MARINE Insurance Company.

RICHMOND, VA.

ASSETS. - $800,000.

DIRECTORS:

Wm. H. Palmer, D. O. Davis,
E. B. Addison, Wm. Josiah Leake,
W. Otto Nolting.

WM. H. PALMER, - - President.
W. H. McCARTHY, - - Secretary.

PAINT TALKS, XXVI.

WHAT MAKES PAINT EXPENSIVE.

When a householder finds that his buildings need painting he may either figure how cheaply he can get the job done, or he may try to learn how he can do it most economically. If cheapness be his chief aim he will select the poorest mixture in the market and proceed to apply it himself. If he prefer economy he will select the best paint he can find, and employ a practical painter to apply it properly.

The work done with the best material, by a practical painter, will cost him, perhaps, a third more or (if he counts his own labor as worthless) twice as much as if he had done the job himself with the poor material.

When the job is completed the sun and the wind and the rain begin to test the value of the work. If material and work be good they will stand. If they be poor a fresh job will be ready within a short time. Then the same operation can be repeated; and so on till the building decays.

Now when painting is to be done it is well to bear in mind a few facts: First, any paint is cheap in comparison with the building it protects; second, the principal cost of painting is the labor; third, the most economical paint is that which protects the building best and longest.

The cheapest paints are neither protective nor durable. Pure white lead is expensive enough, but it requires frequent renewal. The combination paints, or the pure linseed oil ready mixed paints, containing enough (an't that means a good deal) of zinc white to carry large quantities of linseed oil and to prevent the white lead from chalking, cost more than the cheapest alkali, water and benzine paints; but they cost much less than pure lead per square yard of surface covered, and they are far more durable than either.

Durable paint is never, in the long run, expensive; but paints that are not durable are always expensive, no matter how little they cost.

STANTON DUDLEY.

CASTALIA HEREFORDS.

We invite the special attention of our readers to the advertisement of Mr Murray Boocock, Keswick, Va., of his Castalia Herefords; also to his article on the advance in favor of Herefords, which will be found elsewhere in this issue. Mr. Boocock is making a game fight for good cattle, and as the recent record indicates, is meeting with deserved success. Be sure to write to him for prices and descriptive circulars of his splendid stock.

THE MILLION DOLLAR POTATO.

Most talked-of potato on earth. Read its story in Salzer's catalogue which is sent you, together with 10 Farm Seed Samples, upon receipt of this notice and 10c. John A. Salzer Seed Co., La Crosse, Wis.

Farmers scales are advertised by the Grand Rapids (Mich.) Scale works. Write for prices and circulars.

S. C. White Leghorns

PROLIFIC LAYERS.
STANDARD POINTS.

Knapp Bros. and C. H. Wycoff's strains direct.

This stock was personally selected and mated by Mr. Wycoff for my own use, and consists of his choicest specimens, drawn from the largest and most prolific strain of layers in America.

I have also a grand lot from Knapp Bros., who have furnished more winning exhibition birds than any living breeder. I purchased the above consisting of several large pens SOLELY to increase and improve my own stock, but they are laying so surprisingly well, that I offer a limited number of eggs at $1.50 per 15.

My plant in connection with my fruit farm, is the most complete in this vicinity, and is the result of years of experience and experiment. I also have the highest grade of **Black Minorcas, White Wyandottes, Barred and White Plymouth Rocks, Lt. Brahmas, Bronze Turkeys and Mammoth Pekin Ducks.** All the best strains of utility and exhibition stock. I can fill no more orders now for stock or eggs of any of the latter, but have my modern brooding houses full of sturdy youngsters. I am growing these for you next fall,

Farm, L. PARKER HILL,
Dry Bridge, Va. Box 259, Richmond, Va.

ROCHELLE POULTRY YARD,

G. W. WAYLAND, Proprietor.
BOX C. ROCHELLE, VA.

Breeder of High-class

BUFF P. ROCKS.
(Burdicks Strain.)

BARRED P ROCKS.
(Thompson and Bradley Bros. Strain.)

BLACK LANGSHANS.
(Dr. Robinson's Strain.)

S. C. B. LEGHORNS.
(Forsyth Strain.)

EGGS, 15 for $1.50; 30 for $2.50. FOR SALE: 50 Leghorns, sired by First Prize Cockerel Hagerstown, Md., 1897; 30 Langshaus, sired by Cockerel direct from Dr. Robinson. $1.00 to $3.00 each.

Eggs for Hatching

Plymouth Rock, Light Brahma, Brown Leghorn Indian Game and Pekin Duck Eggs at $1.00 per setting, securely packed. A few well bred SHEPHERD PUPPIES. Can send pairs not akin at $5.00 each. Also a nice lot of FOX TERRIER PUPPIES at $5.00 each. Several young BERKSHIRE BOARS large enough for service at 10.

M B. ROWE & CO,
Fredericksburg, Va.

BLACK LANGSHANS

Eggs, $1.00 per 13; Cockerels, $1.00 and up Stamp for reply.

M. A. OLNEY, Coleman's Falls, Va

..BRIDGEFIELD POULTRY YARDS..

BUFF PLYMOUTH ROCKS, BLACK MINORCAS..

Eggs in season, $1.00 per 15.

A. H. GATLAND, PILKINTON, VIRGINIA.

BARRED PLYMOUTH ROCK, BROWN LEGHORN and PIT GAME

EGGS FOR SALE

$2 00 for 13, Stock in season.

E. L. JARMAN,
Woodland Poultry Farm. Charlottesville, Va., or Burnleys, Va.

..EGGS..

BUFF LEGHORN, WHITE GUINEA } 15 for $1.50.

WHITE PEKIN DUCKS, 12 for $2.00.

WHITE HOLLAND TURKEYS, 12 for $4 00.

Birdville Poultry Yards, Petersburg, Va.

OAK FOREST POULTRY FARM.

(The home of the leading strain for eggs.)

Single-Comb Black Minorcas and S. C. White Leghorns.

My breeders are the best. For eggs they have no equal. Prices on both are very low, when you consider the quality of my stock. Eggs 75c. to $2.00 per 13. Few Cockerels, $1.00 each.

CLYDE F. ANDERSON,
Chesterfield Co P. O., Manchester, Va.

..OLD DOMINION POULTRY PLANT..

Barred P. Rocks and White Wyandottes.

Only $1 50 setting of 15 eggs.
Birds bred for utility; farm range.
Address,

J. H. SLEDD, - Negro Arm, Va.

Without Doubt the WHITE WYANDOTTE

Is the COMING fowl of this country. After many years experience with a dozen breeds, I give the preference to the White Wyandotte. Layers of large brown eggs, and a pile of them. One dollar per setting; $4.00 per 100.

W. G. PAGE, DANVILLE, VA.

Sherwood Chickens... FOR SALE.

$1.00 each. Eggs in season, $1.00 per fifteen Also a "PRAIRIE STATE" Incubator in good condition cheap. For particulars apply to

MISS BELLE BROOKE,
Box 618, Staunton, Va.

Thoroughbred S. C. Brown Leghorns

EGGS FOR SALE at $1.00 per setting of 13; $1 50 per 26; $3.00 per 100. My fowls are all FROM PRIZE WINNERS, and are equal if not superior to any in the State.

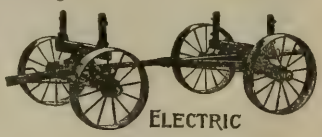
Mrs. D. G. HOAG,
327 Sheldon Avenue, Norfolk, Virginia.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

ARE WE ANY WISER IN OUR FARM WAGONS THAN THE FILIPINOS IN THEIR PLOWS?



The Electric Wheel Company, of Quincy, Ill., make a claim in their new catalogue that the farmer who uses the old style high wheel, narrow tired farm wagon in work about the farm, is as far behind the times as the Filipino who knows nothing better in the plow line than the implement indicated in above sketch. As compared with a high wagon, a low wagon will make an actual saving to the farmer of fully four times its cost in a short time, or about $120.00. It will pay any of our farmer friends who want to effect this saving to write to the above company for their new catalogue. It contains a great deal of interesting matter, and fully illustrates their Handy wagon engaged in various branches of farm work. One man with the Handy wagon will do about as much work as two men with a high wagon. As the Handy wagon has wide tires it makes no ruts, and pulls easily over ground where a high-wheeled, narrow-tired wagon would be hopelessly mired. When one reflects how quickly city people take advantage of every labor-saving device, it is remarkable that many farmers continue year after year using methods and means in vogue years ago, while improved devices are offered at remarkably low cost on every hand. It is impossible here to discuss the subject properly. About all that can be done is to suggest investigation.



The low Handy wagon, with broad tires, has undoubtedly come to stay. We present herewith a cut of the Electric Handy wagon, which speaks for itself.

This company also makes low steel wheels, with any width of tire, to fit any wagon without regard to where or when made. On application to the company, order blanks are furnished, which enable them to absolutely fit your wagon with a set of their wheels. This addition gives you practically two wagons for the price of one. Whether you intend buying or not, it will pay you to write to the Electric Wheel Co., P. O. Box 146, Quincy, Ill., for their catalogue and a booklet entitled "Farm Savings."

FINE FARMS in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address

SAM'L B. Woods, Charlottesville, Va.

EGGS FOR SITTING Thoroughbred Barred Plymouth Rock and Black Minorca at $1.00 per 15.

J. D. BRINKLEY, Oxford, N. C.

S. C. B. LEGHORNS $1 00 EACH; EGGS, $1.00 per 15; $5.00 per 100.

G. W. GRAVES & BRO.,
Victor Poultry Farm, Highland Springs, Va.



L. Brahmas, B. P. Rocks and S. C. B. Leghorns.

The best is the cheapest. We have them. Prices and circulars free.

L. M. ODEN, Hunters Bridge, N. C.

Eggs for Hatching.

Pure-bred B. P. Rock, S. C. Brown Leghorn and Black Minorca. Single sitting 60c.; two for $1.00. Miss S. M. HITER, Ellisville, Va. Louisa, C. & O. Ex. and M. O. Office.

EGGS FOR HATCHING.

From thoroughbred S. C. Black Minorcas Houdons and Barred Plymouth Rocks, per 15. It is generally conceded that Minorcas lay more eggs than any of the feathered tribe.

A. G. HILL,
Green Springs Depot, Louisa Co., Va.

EGGS B. P. Rock, S. C. B. Leghorn, 15 for 75c.; Pekin Duck, 11 for 75c.; 3 sets for $2.00; One-half Bronze Turkey, 95c. for 12. Will improve common stock. May hatch chicks all the winter layers.

D. B. WASHINGTON,
R. F. & P. R. R. Woodford, Caroline Co., Va.

EGGS for hatching from the following pure-bred varieties, at $1.00 per 15:

White and Barred P Rocks, Lt. Brahmas, Partridge Cochins, S. S. Hamburgs, S. C. B. Leghorns.

PEKIN DUCK EGGS. $1.00 per 11.

E. M. RICE, New Market, Va.

W. and B. P. Rock, W. Wyandotte, Lt Brahma, S. C. B. Leghorn and Pekin Duck

+EGGS+

$1.00 per 15.

M. B. Turkey Eggs, bred from 45-lb. tom, $3.00 per doz.; Toulouse Geese Eggs, $3.00 per doz.

C. H. BENNETT, McDonald's Mills Va

WANTED.

A Hereford Bull..

4 to 6 years old. Pedigree no object. Farmer not wishing to inbreed could sell same to me.

A. W. WITHERS, Roanes, Gloucester Co., Va.



FOR SALE..

JACKS, JENNETS and PONIES. Fine JACKS a specialty. Enclose stamp for new catalogue.

W. E. KNIGHT & CO.
NASHVILLE, TENN.

URY STOCK FARM

HOLSTEIN-FRIESIAN CATTLE..

Rich in the blood of the greatest cows of the breed. Herd headed by Ury Alwina Count Paul De Kol 23206 H. F. H. B. Also JERSEY RED Pigs. Write for prices stating just what you want. ALFRED FASSITT, Sylmar, Md.

Poland-China Hogs,
Coach Dogs,
Collies and Greyhounds,
Belgian Hares,
Book on Hares free.
White Leghorns,
Black Minorcas,
Barred Plymouth Rocks,
Pit Games,
Pekin Ducks,
White Holland Turkeys.
EGGS for Hatching.
INCUBATORS.
JOHNSON & GOODE,
BOYDTON, VA.

Dorset Sheep
Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.
Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale
GREEN RIDGE FARM, Salem, Va
WALTER WATSON.

$5 For Pedigreed POLAND-CHINA PIGS at 8 weeks
WM. M. BIGHAM & SONS, Gettysburg, Pa.

AN IDEAL STAINED FLOOR.

The time is drawing near when spring cleaning will be the theme of every housewife, and new helpful suggestions may be welcomed by many. This stain for floors is both pretty and inexpensive, besides being healthier than carpets, and will last longer than mattings. Every housekeeper likes to take up the dusty carpets and give them a rest through the summer any way, and it is well to make the stained floor answer for winter, with pretty rugs or strips of carpet laid about. If one has to study economy it is wise to learn this easy method of having what is next best to hard-wood floors. An oak or mahogany stain for bed room, or library, or sitting room.

The first thing to do is to fill the cracks, if any in the floor. Some fill the cracks with putty. You can do this yourself by using an old case knife, and pressing it in smooth and evenly. One can make a filling for this purpose at home by tearing newspaper into shreds and soaking it in water until it is a soft pulp (or boiling it rather), and to every two gallons add one pound of glue. The cracks must be filled even with the boards. Pour in while hot, or press in with a knife.

For oak stain—mix a pint of boiled linseed oil, a gill and a half of turpentine, three tablespoonfuls of raw umber, and three of whiting. If you wish mahogany color instead of oak, use one pint of boiled oil, a gill and a half of turpentine, three tablespoonfuls of burnt sienna, half a tablespoonful of yellow ochre, half a tablespoonful of Bismarck brown, and a half teaspoonful of anilene black, and three tablespoonfuls of whiting. Try a little of the stain on a piece of board before using. To keep this stain in nice order and high polish—before you put on the stain—make a hot suds of Pearline and scrub the floor, it removes all grease spots, lye or strong soap leaves it cloudy and dingy looking. Once a week mop your floor with a damp woolen cloth, with a little kerosene in the water, wipe the dust up every day. S. J. H.

WORKERS SHOULD BREAKFAST SPARINGLY.

Do not eat a hearty breakfast if you have any mental or physical work to do thereafter. The full stomach may satisfy your craving, but cannot give you the needed or desired strength under about three or four hours Digestion, absorption and assimilation must take place before you can get any good from your breakfast. If these processes are not completed the hearty breakfast simply clogs the vital machinery. Therefore the hearty six o'clock dinner, which will not only build up the waste of the day, but provide a reserve for the morrow, is to be commended.—April *Ladies' Home Journal.*

THE CHAMPION PEA AND BEAN HARVESTER.

Mr. J. D. Gray, of Woolford, Va., manufactures a very valuable implement in the shape of a pea harvester, and sells it for $5.00. We understand that the machine does excellent work, and our readers are invited to send for circulars descriptive of same.

The Filston Farm Jerseys
Have been bred for milk for many years.
If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to
ASA B. GARDINER, Jr., Manager,
GLENCOE, MD
The bulls from this farm have been sold to the very best herds in the South.
Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.
We mail a little "Book of the Herd" on request.

ROCK HILL FARM.
Shorthorns, Shropshire Sheep
..AND..
Poland-Chinas
A Few Choice Gilts Unbred.
B. B. BUCHANAN,
BROWNSBURG, VA.

THOMPSON & TRIMBLE,
SWOOPE, AUGUSTA CO., VA.
Breeders of **Shorthorn Cattle and Shropshire Sheep.**
...CORRESPONDENCE SOLICITED.

ELLERSLIE FARM
Thoroughbred Horses
AND SHORTHORN CATTLE,
Pure Southdown Sheep and Berkshire Pigs.
FOR SALE. R. J. HANCOCK,
CHARLOTTESVILLE, VA.

SHORTHORNS FOR SALE
A choice lot of bull calves from a large and splendid herd of cows and the best Scotch bulls—one of them for sale.
W. W. BENTLEY, Pulaski City, Va.

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

THE BLOOD THAT BREEDS ON.

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

ESSEX PIGS.

I have a lot of young ESSEX PIGS from 8 weeks to 4 months old FOR SALE. Registered and of the finest strains. Reasonable prices. Apply to

W. MILES CARY, Randolph, Va.

Essex Pigs and Southdown Sheep

If you wish to purchase Essex Pigs and Southdown Sheep thoroughly acclimated and eligible to registry, address L. G. JONES, Bethania, N. C

Also Half Dozen Lambs for sale.

FOR SALE—A Few POLAND-CHINA

BOAR PIGS. 12 weeks old.
Prices Moderate.

C. E. JONES, Carysbrook, Va.

THE THOROUGH-BRED STALLION, HEIMDAL

Sire, Imp. Mortimer; Dam, Vandalite.

Will make the Spring Season 1900, at my place and other points in Hanover County. Terms, $10.00 per season. This superbly bred stallion was formerly owned by Thos. W. Boswell, Esq. For extended pedigree see Stud book. For further particulars apply to

F. H. HOLLADAY, Peake's Turnout, Va.

WANTED.

A Dairyman and Butter Maker

A. R. VENABLE, Jr., Farmville, Va.

WHAT'S IN A NAME.

We telephoned to the intelligence office for a cook. As Annie was the only name given on her card from the office, we inquired her surname.

"Annie," I said, "what is the rest of your name?"

"That is it," was the reply.

"Yes," I continued, "I know your name is Annie, but Annie what?"

"That is it, I tell you, missus," she said with a broad smile.

"You have two names surely," I insisted, "a first name and a second name. Now, what is your second name?"

"Oh, missus," she exclaimed with some impatience, "I tell you that is it."

With rising displeasure, thinking she was trifling, I said very decidedly, "Your name is Annie what?"

"Oh," she cried enthusiastically, "I am so glad you know! I tink you will never know. Yes, that is it!"

For a while I sat in silent despair, the girl eveing me with a rueful countenance. Finally, a happy thought struck me.

"Annie," I asked very mildly, "what is your father's name?"

"Michael," was the doleful reply.

"Michael what?" I almost gasped, feeling that I was suddenly becoming a parrot.

But like the eternal "Nevermore" of Poe's "Raven" came the echo, "That is it."

A sudden illumination! Perhaps mine is the dull brain.

"What do you put on your father's letters?" I next interrogated.

"That is what I must put or he would not get them," was the sobbing response.

Unwilling to give up after such a trial of patience on both sides, I asked gently, "How do you spell it?"

Slowly came the solution of the enigma—"W-a-c-h-t."—Mrs. S. M Montgomery in the April New Lippincott.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

To Stock-Raisers and Dealers.

I desire to stock a small place. I have been in the piano and music business for 35 years, and would like to exchange entire or in part pianos or organs for stock required on a farm. I guarantee honorable dealing, cash prices and perfect satisfaction, and expect the same in return. Address—

F. W. WALTER, STAUNTON, VA.

We Bind...

Your Magazines, Southern Planters, or any other books

PRICES LOW.
Satisfactory work guaranteed.

Job Printing Neatly Executed.

S. B. ADKINS & CO.,

RICHMOND, VA

FARMERS' LIBRARY!

SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
FERTILITY OF THE LAND,	$1.25
FEEDS AND FEEDING, -	$2.00
TOBACCO: How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

CHICKENS AND EGGS



Are the most profitable sources of revenue on the farm. Like other things, it requires much time and attention to be a successful poultry raiser, while the necessary requisites are being constantly added in order to accomplish the desired end. Among the greatest hindrances may be mentioned the various diseases peculiar to fowls, such as CHOLERA and GAPES, which can not only be speedily and permanently eradicated, but their appearance again prevented by the occasional use of **POLK MILLER'S**

"VICTORY"
POULTRY FOOD

An excellent preparation, indispensable to every poultry raiser. It is not a food as its name implies, but a scientifically PREPARED MEDICINE (put up in handsome tin boxes) a given quantity of which is to be mixed with the usual quantity of food. For sale by all DRUG and COUNTRY STORES. If your merchant hasn't it in stock, get him to get it for you

PRICE, 25c. per Package; By mail, 35c.



MANUFACTURED BY

POLK MILLER DRUG CO.,

RICHMOND, VA.

RICHMOND PRICES—Mar. 29, 1900.

J. F. Jacob & Co., Commission Merchants

Comments for the Week.

Tobacco—Sun-Cured—Receipts and offerings continue very light and market steady at unchanged quotations. Brights—Unchanged; quiet. Dark—Fine stemming continues in good demand at full figures; other grades steady at unchanged quotations; receipts light.

Wheat—Receipts continue very light; market quiet.

Corn—In active demand.

Oats—Firm at quotations.

Hay—Market quiet; stocks ample for demand, but receipts are light.

Flour—Unchanged; dull.

Rye—Continues very quiet.

Eggs—Receipts heavy; market very dull.

Butter—Market in good shape; receipts very light.

Poultry—Receipts light and market active.

Virginia Bacon—Small hams well smoked and shoulders in fair demand; large hams and sides dull; receipts increasing.

Potatoes—Demand only moderate; light receipts.

Onions—Receipts of good stock continue light and market firm.

Apples—Firm; light receipts.

Hides—Continue very weak, with downward tendency.

Sun-Cured Tobacco—New.

Lugs, common, 1.50 to 2.50.
Short Leaf, 3.50 to 4.50.
Long Leaf, 5.00 to 6.50.
Wrappers, 8.00 to 12.00.

Bright Tobaccos.

Smokers—Medium, 8.00 to 9.00.
Cutters—Medium, 13.00 to 15.00.
Fillers—Medium, 5.50 to 7.00.
Wrappers—Medium, 12.00 to 15.00.

Dark Tobacco—New.

Lugs, inferior to good, 1.75 to 2.50.
Medium Leaf, 5.00 to 7.50.

Wheat—No. 2 Red, 76.
Bag lots, 70 to 75.

Corn—No. 2 White, 44½ to 45.
No. 2 Mixed, 44½.
White Corn, Va., bag lots, 45 to 46.

Oats—Winter Seed Oats, nominal.

Hay—No. 1 Timothy, 15.50.
No 1 Clover, mixed, 14.50 to 15.00.
No. 1 Clover, 14.00.
Virginia Timothy, No. 1, 14.50.
Virginia, mixed, 12.00.
Clover, Virginia, 10.00 to 12.00.
Shucks—baled, 10.00 to 11.00
Straw—Compressed, 8.00 to 8.50.

Flour—Mill Offal—Bulk. Shipstuff per ton, 16.00 to 16.50
Bran, 15.00 to 15.50.

Poultry—Turkeys, live, gobblers, per lb., 9 to 10.
Turkeys, live, hens, 11 to 12.
" dressed, gobblers, per lb., 12 to 13.
Turkeys, dressed, hens, 14 to 15.
Chickens, live, per lb., fall, 12 to 14.
" " " spring, 18 to 25.
Dressed, per lb., 11 to 12.

Fruits and Vegetables—

Oranges—California seedless, per box, 2.50 to 2.75.
Potatoes—Rose, per bushel, 50 to 55.
Cabbage—Per truck barrel, 2.50 to 3.00
" Per sugar " 3.00 to 4.00.

"Housework is hard work without Gold Dust"

Washing Willow Furniture and Wicker Chairs

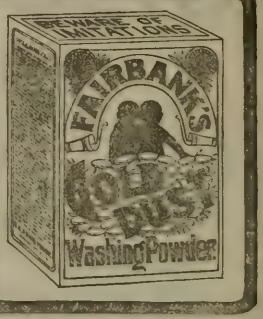
Wicker chairs soon become soiled, but they can be cleaned to look like new with

Gold Dust Washing Powder

and warm water. Use a scrubbing brush; when water becomes the least soiled, get fresh; follow with a soft, dry cheese cloth, and wipe dry White iron beds can also be washed by this method, but must be wiped dry quickly.

The above is taken from our free booklet "GOLDEN RULES FOR HOUSEWORK" Sent free on request to

THE N. K. FAIRBANK COMPANY,
Chicago, St. Louis, New York, Boston.





LAYERS and BROILERS.

Professional Poultrymen now call for a strain of **B. Plymouth Rocks BRED** for this purpose. We have supplied such for several years. And they know. See? It costs little to try at $1.00 per setting for eggs; $1.00 up for stock. Staying behind may cost more. Interesting illustrated catalogue free. Fine references. Address

GEO. HARRISON MORRIS,
ASHLAND, VIRGINIA.

Sunny Bank Poultry Ranch

Barred Plymouth Rocks,

..EXCLUSIVELY..

Nothing in our yards but the **purest strains extant,** viz.: Thompson, Bradley Bros. and Miles. We are now booking orders for EGGS for hatching, 15 for $1.00; 100 for $5.00 **We pay express charges** on all orders amounting to $3 or over.

OUR GUARANTEE IS THIS: Any one failing to get ten chicks from a sitting of our eggs we will furnish an extra sitting at half price.

REMEMBER, you can order now, and have your eggs shipped any time during hatching season. Eggs are carefully selected, packed and shipped in the latest patent box, made especially for the purpose. **100 Pullets for sale, $1.50 each; $15. dozen.**



SIR WALTER.

GARNETT BROS., Mitchells, Va.

RICHMOND CATTLE MARKET.

March 29—Prices this week ranged as follows: Beef Cattle, very best, to 5c. Extra, to 4¾c. Good, 4 to 4½c. Medium to fair quality, 3 to 4c. Common to medium, 1¾ to 3c. Bulls, 2½ to 3½c. Sheep—3 to 5 lbs. gross. Hogs—4.50 @ 5.25 per hundred gross weight. Milch cows—20.00 to 30.00. Calves—4½ to 6c. Lambs, 4 to 5½c.

Receipts—550 Cattle, 100 Sheep and Lambs, 500 Hogs.

Sales—550 Cattle, 100 Sheep and Lambs, 500 Hogs.

"GATHER UP THE FRAGMENTS THAT NOTHING BE LOST."

M. W. EARLY, Lynchburg, Va.

The above verse from Scripture, apart from its higher spiritual meaning, is replete with practical wisdom in regard to the little details of common daily life. The housekeeper who has learned to follow the literal teachings of this verse not only adds immensely to the comfort of her household, but greatly reduces its expenses. For instance, she does not waste the remains of a cold roast of meat, nor does she continue to bring it to the table in such an uninviting form that her family turn from it in disgust, but she utilizes it by turning it into an appetizing soup or stew. When rice is left over from dinner, it is a perfect "drug in the market" in the hands of a raw, inexperienced housekeeper, whereas a skilful one knows of about twenty combinations into which it may enter and help to form a palatable dish. Out of a half dish of rice, and the same of tomatoes left over from dinner, she can make a delightful Italian dish, known as risotto, by stewing the tomatoes and rice together and flavoring them with minced onion, pepper and salt and a little cheese. This dish can be made richer, if you desire it, by the addition of a few slices of ham, chopped up fine, and this is a good way to dispose of the scraggy remains of a ham.

Another excellent way to utilize a ham arrived at this stage is to cut every available piece off the bone (leaving the dark underparts and strong yellow fat) and grind it in a sausage mill, mixing it then with one-third proportion of stale bread crumbs and an egg, and frying it as croquettes, or you may take the ground-up ham and flavor it with a little vinegar, celery and minced onion, put it in cups or small bowls to shape it, and turn it out on a plate for supper or luncheon.

A novice in housekeeping takes no note of what becomes of the soup meat, after boiling, regarding it as insipid and valueless, but the woman who tries to gather up the fragments and utilize them will make a very good breakfast hash of this meat by adding to it the top, greasy skimming of the soup, a large lump of butter, a chopped up onion, a little salt and pepper, and a few potatoes also left from dinner. The French, from whom we might learn many valuable lessons in economy, never permit the waste or throwing away of any water in which meat has been boiled. They utilize it for soups, stews, or some purpose. They excel all nations in their literal compliance

BILTMORE FARMS,
BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO **GEO. F. WESTON, SUPT.**



JERSEYS FOR SALE

Some choice young COWS and HEIFERS, sired by the great St Lambert bull,

ETHEL'S JOHN BULL No. 29005 whose dam, Ethel of Shelburne, granddam Crocus of St. Lambert, and her full sister, the great Mary Anne of St. Lambert, have an average butter record of 22 lbs. and 7 ounces in 7 days.

Also some extra fine BULL CALVES out of high testing daughters of the above bull, and sired by our grand young bull,

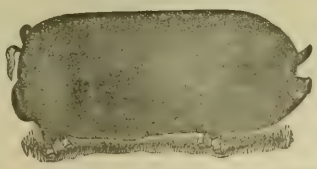
ADMIRAL ST. LAMBERT No. 51338 whose dam, Flower of Meridale, has a butter record of 26 lbs., 11⅔ oz., in 7 days, and a daily milk record of 53 lbs., 8 oz.

We have also for sale some fine cockerels and pullets of Indian Game, Barred P. Rock and White Wyandotte fowls.

BOWMONT FARMS, SALEM, VA.

A Union of England and America

THE MUCH MOOTED QUESTION SETTLED.



N. BENJAFIELD, at Motcombe, Shaftesbury, England, and THOS. S. WHITE, of Lexington, Va., can explain this Union. N. Benjafield stands at the top for thoroughbred English Berkshires in his country, and as Thos S. White got his start from said Benjafield, then, of course, the said White has the best blood in America. Fancy Pigs, but not fancy prices, now before the puplic.

Write to **THOS. S. WHITE, Lexington, Va.**

41 Pigs now Ready for Shipment. Some Ready for Service; Boars and Sows.

WE SAVE YOU MONEY ON FERTILIZERS.

Buy your fertilizers Direct at Wholesale Prices, and get your money's worth.

SPECIAL OFFER TO CLUB PROMOTERS.

WRITE FOR PRICES, SAMPLES AND PAMPHLET.

WALKER, STRATMAN & COMPANY, Pittsburgh, Pa.

with the command to "gather up the fragments that nothing be lost."

If stale bread should accumulate on our hands we can make bread puddings of it, and with the addition of plenty of sweet milk, eggs and butter, a cup of sugar and some pleasant flavoring, they are not to be despised. Another good way to utilize stale bread is to soak it thoroughly in milk, add a beaten up egg and fry it for buttercakes. In short, the fragments that would be wasted in the hands of a careless or inexperienced housekeeper, go far towards providing a palatable table in the hands of one who conscientiously tries to make the best of every store that comes into her hands.

When we come to the question of clothes, the principle of gathering up and utilizing fragments seems especially applicable. There seems almost no end to the wonderful reconstructions and new combinations a woman can effect with her needle, thread and scissors, if she is possessed of some taste and judgment. Some skill and experience in this province of thrift will enable a woman of very moderate means to appear neatly and tastefully dressed, and to have her children do the same.

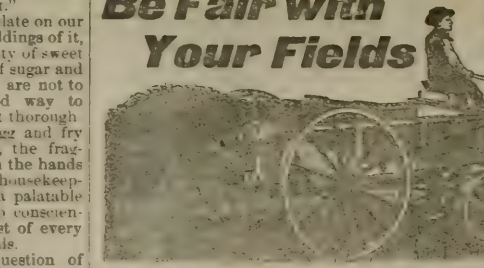
There is nothing it is more important to gather up than fragments of time. How many precious minutes are wasted which collectively would make hours, or even years in the course of a long lifetime! When we have a brief interval of leisure we are apt to think that nothing can be accomplished in so short a time, and so waste the interval which, added to other similar ones, would give us time to master a language, or to read whole sets of valuable books. Few women are unprovided with work for stray moments, knitting, crochet or embroidery, but I would suggest that they use more of these stray moments for culture than for the above named pursuits. Let them keep a little book shelf filled with fine and refreshing reading in their bed-room, dining-room, or if need be, in their kitchen, so they may snatch a little refreshment from their reading when a fragment of leisure presents itself, a fragment too brief perhaps to make it worth their while to go up a flight of steps with the deliberate purpose of getting a book to read. Put stout paper covers on your favorite books, and put them wherever you can get at them most readily, in your little intervals of leisure, and be sure to have good periodicals at hand, as they are better adapted to "snatchy" reading than other forms of literature.

The same spirit which leads us, in little things, to gather up and utilize fragments is of great assistance to us in higher provinces of life and wider fields of effort. It leads us to garner up and utilize to the fullest extent in one's power whatever gifts or opportunities Providence may see fit to bestow on us.

BORDEAUX PAINT.

The attention of our readers is asked to the advertisement of the Lenox Sprayer Co., Pittsburg, Mass., which will be found in another column. This firm operates the largest Bordeaux works in the world, and also manufactures the celebrated sprayer which bears their name. Send for descriptive circulars, prices, &c.

Be Fair with Your Fields and they will be fair with you..... Listen a moment.



Every time you take a crop off a field you relieve it of just so much fertility. You should do something to restore that fertility. Barnyard manure is the best fertility restorative known if properly handled and intelligently applied. Even a small amount can be made to go a long way and accomplish great good. But this cannot be successfully done by hand—it is work for a perfect machine. The only machine known which accomplishes this is

The KEMP MANURE SPREADER.

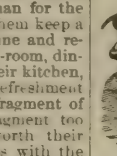
It will Double and Treble the Value of the Manure Heap.

It spreads all kinds of fine and coarse manure evenly; it makes no "skips." Does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and mashes it fine. Better than can possibly be done by hand. Spreads lime, wood ashes, salt, etc., equally well. With the distributor it puts the manure direct into the open drill. Made in three convenient sizes. Ask the opinion of anybody that uses one. Write for illustrated catalogue.

Kemp & Burpee Mfg. Co., Box 28, Syracuse, N. Y.

C. C. Taliaferro,
NASONS,
VA.

"MOUNT SHARON" Red and Grade HEREFORD CATTLE
BRONZE TURKEYS & MUSCOVY DUCKS
STOCK FARM. Registered SHROPSHIRE SHEEP Registered POLAND-CHINA PIGS.





NOW OFFERS FOR SALE:

HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

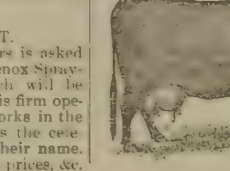
POLAND-CHINA HOGS.—Pigs, six weeks old, $4.50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L. Jr., No. 21458, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.



SOUTHSIDE STOCK STUD,

ON ROANOKE RIVER, IN MECKLENBURG CO.

Trotting Horses, Red Polled Cattle, Dorset Horned, Shropshire and Hampshiredown Sheep, Berkshire Hogs, Pedigree Llewellyn Setters and Scotch Collie Dogs.

All Stock Thoroughbred and Registered.

GEO. B. FINCH, Prop., Boydton, Va.

WASTE IN THE KITCHEN.

A careful oversight of the affairs of the kitchen would enable many housekeepers to greatly reduce expenses. The amounts saved would be small, it is true, but the pennies soon grow into dollars, and there are very few families who cannot find a place for every dollar. Put the pieces of bread in a jar until you have a quantity of them, and use them as they are needed. They are nice for milk-toast, chicken dressing, hash, and croquettes. When they become very dry, roll them into a powder with a rolling-pin, and use them just as you would cracker crumbs.

Save the frying and meat drippings. Water in which meat has been boiled should be allowed to stand until it is cold, when the grease that collects on the top can be taken off. To clarify it, put it over the fire and heat it until the water has evaporated. There are many ways in which it may be used, and it will be as good as lard or butter.

When a bar of toilet soap becomes too small to use, put it in a cup and set it aside until you have several of them. To half a cupful of these pieces add a tablespoonful of water, set the cup in pan of boiling water, and allow it to boil until it is melted, stirring occasionally. Pour it into a deep sauce-dish to cool. It can be removed by running a warm knife blade ar und the edges, and you will have another cake of toilet soap.

The small wastes are almost innumerable. Oil is spilled while the lamps are being filled; pickles are left without vinegar on them until they are spoiled, and must be thrown away; two spoonfuls of pearline are used in the dishwater when one would clean the china and glassware and leave it bright and shining; the gasoline can is left open, and its contents evaporate. Bones from steaks are thrown away when they might be used for soup stock. Coffee that is left from a meal is thrown out instead of draining it off the grounds and keeping it in a glass jar. When it is needed, put the jar in a pan of water and heat gradually until it is boiling. The pudding is put in a dish that is not well greased, and its contents stick, thereby wasting part of it. Thrift is not stinginess, and is always commendable, whether in the homes of the poor or the rich. To be able to turn everything to the best account is an ability of which a woman may well be proud.

E. J. C.

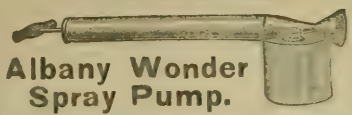
QUICK WIT ADDED $4.90 TO THE COLLECTION.

A man came up to me one day after service in a frontier town and was pleased to address me in this manner:

"Say, Parson, that there service and sermon was grand. I wouldn't have missed 'em for five dollars."

When I suggested that he hand me the difference between the amount he had put in the collection basket and the figure he mentioned, for my missionary work, he stopped suddenly, looked at me with his mouth wide open, and then slowly pulled from his pocket four dollars and ninety cents, which he handed to me without a word.—Rev. Cyrus Townsend Brady, in the April *Ladies' Home Journal.*

$3 TO $5 A DAY EASILY MADE.



Albany Wonder Spray Pump.

Will spray thoroughly 1,000 potato vines without refilling. Cylinder 18 in. long, 1¾ in diameter; tank holds 1 quart. In 1895 we sold 1,000 pumps; in 1898 we sold 50,000. For the next 10 days we will send you a pump for 50c.; all brass pump for $1. One agent sold 1,000 pumps in one county last season. Send for Circular A, Spray Pumps; B, Hot-Air Stoves; C, Feed Cookers; D, Steel-Plate Ranges. ALL FREE.

GRANITE STATE EVAPORATOR CO., Box 153, Albany, N. Y.



Pat. March 16 and Nov. 9, 1897.
Pat. in Canada Nov. 2, 1897.

BUG DEATH

is the leading Insecticide of the day. It is NON-POISONOUS, and is endorsed by the prominent seedsmen of the East. SAMPLE FREE.

PRICE-LIST.

1-pound package..... 15c. 3-pound package..... 35c.
5-pound package..... 50c. 12-pound package..... $1.00
Perfection Shaker..... 65c.

FOR SALE BY ALL FIRST-CLASS SEED HOUSES.

Warehouses in all large cities. If your dealer don't handle these goods, ask him to do so, or write us.

DANFORTH CHEMICAL CO.,
104 Spruce Street, LEOMINSTER, MASS.



FOR SALE

Highlands Stock and Poultry Farm . . . .

at a very low price and on good terms.
Choice **SHROPSHIRE SHEEP** and **Lambs.**
The best **POLAND-CHINA, BERKSHIRE** and **CHESTER PIGS.**
Can furnish extra fine **DURHAM** and **JERSEY CATTLE** at farmer's prices.
EGGS, B. P. Rock and Silver Wyandotte.

If you want a good home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

Registered Berkshires

"MAYOR OF BILTMORE" at Head of My Herd.



Write for my prices on pigs before purchasing elsewhere. I can furnish you the **finest** stock at reasonable prices.

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.
Correspondence solicited,

Southern and N. & W. Rys. **T. O. SANDY, Burkeville, Va.**

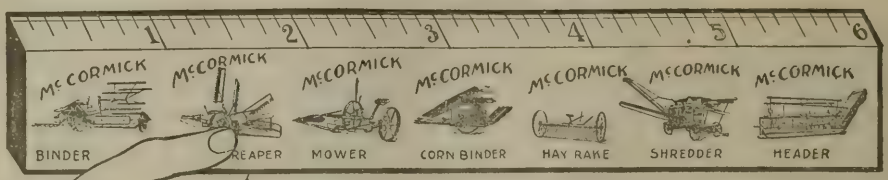
.. BACON HALL FARM ..

HEREFORD CATTLE—Winners at ten fairs 1899.
DORSET SHEEP—Bred ewes and fall lambs.
BERKSHIRES—Only pigs at present.

SATISFACTION ALWAYS OR NO SALE.

E. M. GILLET, Verona, Baltimore Co., Md.

CALL ON OUR AGENT



The machines by which other machines are **MEASURED** always bear the name

McCORMICK!

McCORMICK HARVESTING MACHINE CO., CHICAGO—LARGEST WORKS AND LARGEST OUTPUT IN THE WORLD.

"SAW" THE FIRST GROOM'S ANTE.

AND RAISED HIM FIVE DOLLARS FOR THE PARSON'S MARRIAGE FEE.

Relating his experiences as "A Missionary in the Great West," Rev. Cyrus Townsend Brady tells, in the April *Ladies' Home Journal*, of two weddings in the same town on the same day—one in the morning and one in the afternoon—at which he officiated:

"The first wedding fee I received was ten dollars—a very large remuneration for the place and people. After the second wedding, the best man called me into a private room and thus addressed me: 'What's the tax, Parson?' 'Anything you like, or nothing at all.' I answered. I have frequently received nothing.' 'Now,' said he, 'we want to do this thing up in proper shape, but I have had no experience in this business, and do not know what is proper. You name your figure.' I suggested that the legal charge was two dollars. 'Pshaw!' he said, 'this ain't legal. We want to do something handsome.' 'Go ahead and do it,' I said. Whereupon, he reflected for a moment or two, and then asked me how much I had received for the wedding of the morning. 'Ten dollars,' I replied. His face brightened; here was a solution to the difficulty. 'I'll see his ante, he remarked, 'and raise him five dollars.' Whereupon, he handed me fifteen dollars.'

If fate has denied to any woman a home, a husband and a baby, let her take up art, or medicine, or blacksmithing, as she chooses, and try sincerely to make the best out of her life that she can. But to claim that these are nobler occupations than her own craft—the high calling of wifehood and motherhood—is the most shallow and dangerous of cant.—April *Ladies' Home Journal.*

When you write to an advertiser, mention THE SOUTHERN PLANTER.

"PASTEUR" BLACK LEG VACCINE,

The original and genuine preventive vaccine remedy for blackleg. Officially endorsed in all the cattle raising States. Successfully used upon 1,500,000 head in the U. S. A. during the last 4 years. Write for official endorsements and testimonials from the largest and most prominent stockraisers of the country. "Single" treatment vaccine for ordinary stock; "Double" treatment vaccine for choice herds,

Registered **"BLACKLEGINE"** Trade Mark.

"PASTEUR" single treatment Blackleg Vaccine READY FOR USE (no set of instruments required). No. 1 (about 10 head), $1 50; No 2 (about 20 head), $2.50; No. 3 (about 50 head) $6. Easily applied. No experience necessary.

PASTEUR VACCINE CO., 712 GARDEN CITY BLOCK, CHICAGO, ILL.

Pure-Bred English Berkshires



Swine of the finest breeding and individuality. Young stock of both sexes and all ages for sale. A trial order will convince you my Berkshires are all right. Pedigree in full with every pig sold.

M. A. GRIFFIN,
Richardson Creek, Union Co., N. C.



PLEASANT VIEW HERD OF..
REGISTERED
Chester White AND THE FAMOUS **O. I. C. Swine**

Can furnish pairs and trios not related. Pedigree furnished with every pig sold. Correspondence solicited.

ARCHIE C. ROPER,
Lock Box 122, CHARLESTOWN, JEFFERSON CO., W. VA



The 20TH CENTURY POULTRY BOOK

is the very latest, up-to-date authority on the poultry business in this country. It treats the entire subject in a masterful way drawn from years of ripe experience in conducting the largest pure blood poultry plant in the country. Treats incidentally of the newest and best things about the world famous Reliable Incubators and Brooders. Sent to anybody for 10c to cover postage. Reliable Inc. & Brooder Co., Box 811 Quincy, Ill.





The "Ship of the Desert"—"Planet Jr." Rudder.

We have not read anywhere that the "Ship of the Desert" required a rudder, but certainly we could suggest no more profitable or appropriate one than appears in this cut. This "PLANET JR." Horse Hoe is extensively used in Egypt for the cultivation of cotton. In this country it is the standard machine for cultivating that crop and also corn, potatoes, tomatoes, cabbage and all other crops which are cultivated with one horse. We were the original inventors of Horse Hoes nearly thirty years ago, and have steadily maintained our position as leaders among the makers of this class of goods.

We make also a complete line of Horse-hoes, Wheel hoes, Pivot Wheel Cultivators, Spring Tooth Orchard Cultivators, Four-row Sugar Beet Cultivators, Sugar Beet Seeders, &c., each equipped with a variety of attachments for many purposes.

Our new 1900 catalogue, of which we issue 250,000, is the handsomest, best and most instructive book ever issued on a similar subject. Gives an extended treatise on agriculture at home and in foreign lands. Full of little points that bring profit. Full of true and handsome illustrations. We mail it free to any address on application.

S. L. ALLEN & CO., Box 1107-X. PHILADELPHIA, PA.

THE VETERAN.

Nuthin' but fightin' an' fiightin'! I'm gittin' too old fer it now,
But when I hear bullets a whizzin', I want to jine in *anyhow*!
Jest readin' the news in the papers o' how they air blazin' away
Makes me cut up the queerest o' capers, an' hooray the old time hooray!

Nuthin' but fightin' an' fightin'—guns from the East to the West,
An' me on a furlough that's left me forever *an'* ever at rest!
Step sorter haltin' an' feeble—eyes that air lackin' the light,
An' my *heart* keepin' time to the drum-beat when I see the boys hep to the right!

Nuthin' but fightin' an' fightin', an' nuthin' that's left me to do;
An' yit I'm as willin' as ever an' yit I wuz raised to it, too!
I tell you, my eyes they git misty when I'm hearin' the news o' the fray,
To think I kin only jest *hear* it, an' stay home an' holler "Hooray!"

Didn't I face it with "Stonewall?" Didn't I foller "Bob" Lee?
Didn't he say fer a-many a day there warn't any fighter like me?
An' *now*, whilst they're rippin' an' rearin', an' doin' their deadliest do,
I can't take a hand in the scrimmage with the boys in the jackets o' blue!

"Laid up!" Them's the words I'm a-sayin' all o' the days an' the years;
Laid up! whilst the ban's air a playin'—laid up on the shelf fer repairs!
An' I hear how they're fightin' the battles—I see the boys marchin' away,
An' all I kin do fer my country is to stay home an' holler "Hooray!"

Frank L. Stanton in the Saturday Evening Post.

A PRIZE THOUGHT.

A teacher of music in one of the public schools of the South desired to impress the meaning of the signs "*f*" and "*ff*" in a song they were about to sing. After explaining that "*f*" meant forte, he said: "Now, children, if "*f*" means forte, what does "*ff*" mean?

Silence reigned for a moment, and then he was astonished to hear a bright little fellow shout:

"Eighty!"—New Lippincott for April.

The Middle South WOOL BOOK

A Treasure *of* Practical Information for the Home *and* Farm



Presented by the LEAKSVILLE WOOLEN MILLS, Leaksville N. C.
Edition of 1900

FULL SIZE, 7¼x5½ INCHES
∴ BOUND IN CLOTH ∴
∴ STAMPED IN GOLD ∴

DO NOT DISPOSE OF YOUR *WOOL*

until you write to the LEAKSVILLE WOOLEN MILLS, Leaksville, N. C., for samples and catalogue containing liberal offers for the season of 1900. ∴ ∴ A handsome line of Dress Goods, Flannels, Tailor-made Skirts, Blankets, Coverlets, Carpets, Rugs, Cassimeres, Jeans, Buggy Robes and Knitting Yarns, exchanged for Wool, or manufactured on the cash plan. ∴ ∴ ∴ ∴ We pay freight on all wool sent to the mills. ∴ ∴ ∴ A valuable book sent free in every package of manufactured goods. ∴ ∴ ∴ ∴ ∴

LEAKSVILLE WOOLEN MILLS, :: LEAKSVILLE, N. C.

Where to Sell Your WOOL

WE ARE THE LEADING DEALERS IN THE WOOL TRADE IN VIRGINIA.

HIGHEST MARKET PRICE PAID, and no Commission, Freight, &c., charged. SACKS FURNISHED FREE. Check remitted promptly. Correspond with us when ready to sell.

THE WALLERSTEIN PRODUCE CO.
10 and 12 So. 13th St., RICHMOND, VA.

REFERENCES: American National Bank and Richmond merchants generally.

A Small Thresher

Has great capacity—runs easy with light power.

The Farmer's Friend.



BELLE CITY Feed and Ensilage Cutters.

All sizes—hand and power. Illustrated Catalogue and latest book on Ensilage mailed free.

The Columbia will thresh all grains with less help, at less expense. Full line of Sweep and Tread Powers. Illustrated catalogue and testimonials free.



BELLE CITY MFG. CO., Racine, Wis. Box 73.

IF YOU WANT THE **BEST WAGON** ON THE MARKET ..BUY THE.. **"OWENSBORO,"**



Made with patent Sand Arrester, Self-Oiling Cast Skeins, Malleable Skeins, Solid Steel or Hollow Axles, with high or low wheels. The Owensboro Wagon Co. was the only Wagon Company that received a diploma and medal at the "Nashville Exposition" on

CAST SKEIN FARM WAGONS.

The "OWENSBORO" for fifteen years has stood every test, filled every requirement, and in the face of the most earnest efforts of all other wagon makers to equal it, it stands without a rival.

IF NOT ON SALE IN YOUR SECTION WRITE US FOR PRICES.

OWENSBORO WAGON CO., OWENSBORO, KY.

Lady Salisbury's father, Baron Alderson, was a very merciful judge, but he was not easily imposed upon. Several stories are related of the Baron's ready wit on the bench. On one occasion at the Liverpool Assizes, as the clerk was administering the oath to the jury, one of them interrupted with the exclamation: "Speak out, sir! I can't hear what you say." "Stop!" exclaimed Baron Alderson; "are you deaf?" "Yes, my lord—of one ear," replied the juror. "Then you had better leave the box," said the learned judge, "for it is necessary that jurymen should hear both sides." At the Hereford Assizes, however, the same judge showed that the plea of deafness might be offered once too often. A tradesman who had been summoned on the jury claimed exemption from serving on the ground that he was deaf. "What does he say?" interposed the judge. "He says that he is deaf, my lord," replied the Clerk of Arraigns. "Are you very deaf?" asked Baron Alderson in a whisper, looking intently at the juror. "Very," was the unguarded reply. "So I perceive," rejoined the judge. "Very deaf, but not whisper deaf You had better go into the box. The witnesses shall speak low."

The manager of the phosphate mine was a Scotchman. At first he was obdurate and desired us to leave the ground, and to drop the specimens we had taken. At last I addressed him in good Scotch, and asked him whether he thought I was a mining adventurer. "Ay, that's just what ye are!" "No," I replied: "I am a Scotch professor." "Then, if ye are, ye'll be havin' a name." "My name," I said, "is Playfair." "Man," said my Scotch friend "are ye Lyon Playfair?" I assured him I was, but expressed surprise that he knew the name, to which he replied, looking from his six feet two inches with compassion on my five feet four inches, "Hoot, mon, yer name's travelled further than yer wee legs will ever carry ye!"

"As Good as Wheat in the Mill."

It Never Chokes Up!

IT NEVER GATHERS TRASH. IT WORKS WELL IN ANY SOIL. WE OFFER THE



KENTUCKY DISK DRILL

with the confident belief that it possesses more points of superiority than any other drill made. The drag bar, a single flat bar which will stand any strain is on the concave side of the disk, giving direct downward pressure and making light draft. The disk-bearings are practically dust proof. There are no cog wheels, being entirely chain driven. The front lift admits of easy access to oil or examine the disk bearings. It is absolutely accurate. It wastes no seed. Made in 10 sizes. Catalogue explaining points in detail WILL BE SENT FREE.

BRENNAN & CO., S. W. Agricultural Works (Inc.) Department A-8, LOUISVILLE, KENTUCKY.

KEYSTONE QUICK HAY MAKERS.

KEYSTONE MFG CO STERLING ILL

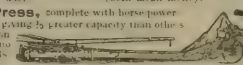
KEYSTONE Side-Delivery Rake tosses the hay into a light, airy, continuous windrow to cure without bleaching. Hustlers caring saves use of tedder—gathers no trash. **Makes Alfalfa**, Rakes wide, fast, clean. No dumping—any boy can use it. Follows mower closest. Leaves hay best shape for loader. Simple—Strong—Successful



KEYSTONE Hay Loader. Attached to rear of wagon, runs light, requires no extra horses. Reloads a wagon in five to ten minutes from windrows or rick. **Gets all the hay without any trash.** Does not thrash off leaves. Saves time and labor when both mean money.



KEYSTONE Three Feed Hay Press, complete with horse power. Has three feeds to every pound of power, giving ½ greater capacity than others with same power and belts. Steel and iron throughout—no cog wheels on horse power—no release jerk to sweeps—press always on when is



Simplest. Strongest. Speediest

Write for full descriptions to KEYSTONE MFG. CO., 11 River St., STERLING, ILL.

IT'S WORTH YOUR WHILE....

to investigate the difference between our prices and those of agents and dealers for the same grade of work.

...WE DO NOT SELL...

through agents or dealers, therefore we do not have them to protect, and in making our prices are enabled to fix them as low as the grade of work we manufacture can be sold. We save you the profits that are added between the manufacturer and the consumer, by selling direct to you from our factory. This has been our method of selling for the past twenty-seven years, and we are today the largest manufacturers of vehicles and harness in the world selling direct to the user exclusively. We make 158 styles of vehicles and 65 styles of harness and ship anywhere for examination, guaranteeing safe arrival. Send for free catalogue showing all of our different styles.



No. 47½—Single Strap Harness. Fitted with nickel trimmings, $19.50. As good as sells for $6.00 more.



No. 191—Buggy, with leather quarter top. Price with shafts, $53.00. Guaranteed as good as others sell for for $25 more than our price.

ELKHART CARRIAGE AND HARNESS MANUFACTURING CO., ELKHART, INDIANA.

THE IMPLEMENT CO.

RICHMOND, VA.

CANTON DISC CULTIVATOR

WITH LEVER AND HARROW ATTACHMENT.

This is a grand labor-saving implement. The gangs are constructed so that extra discs can be added on either side, making it practically a Disc Harrow. It is adjustable for all kinds of work, and will throw dirt to or from corn. The gangs can be raised high in the center for cultivating listed corn, or reversed for the purpose of hilling up corn.

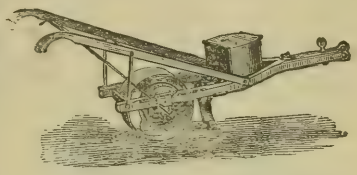


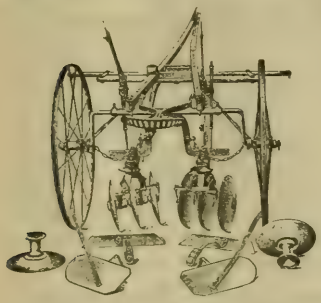
WE ARE AGENTS FOR..

Evans Celebrated Corn Planters,

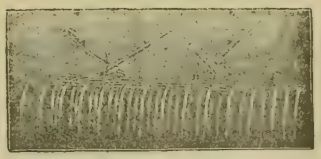
With or without Fertilizer attachment. Can be adjusted to plant corn at any distance, likewise can furnish plates so that it will plant Peanuts, Beans, Peans, etc. A special lot of the best HAND CORN PLANTERS, $1.00 each.

We have STANDARD Corn and Cotton Planters





Five-tooth Iron Age Cultivators and other kinds. Cutaway and Solid Disc Harrows.

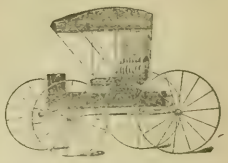


Hallock Weeder

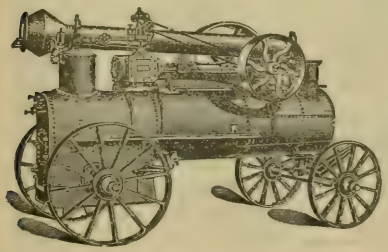
Is fine for cultivating and destroying weeds when the crop is young and for covering grass seeds.

We have a large grand stock of **BUGGIES.** Special catalogue sent on application.

CAPITAL, BUCKEYE and LOG WAGONS, warranted.



We are overstocked with **BISSELL CHILLED PLOWS.** To reduce our stock, we will sell our surplus at 25 per cent below their value. DIXIE, FARMER'S FRIEND, IMPERIAL and other plows and repairs.



ENGINES, SAW MILLS AND THRESHERS.

We have an immense stock of

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and all kinds of AGRICULTURAL IMPLEMENTS.



FENCING. PUMPS, ROOFING, HARROWS, Etc

THE IMPLEMENT CO.,

1302-1304 E. Main Street, RICHMOND, VA.

FOR THE LITTLE ONES.

There are so many ways of economizing in children's clothing that it seems strange that there should be any who are not neatly and comfortably dressed. Many large millinery stores have special sales of felt hats during the latter part of the winter, and the prices are very low As the styles for children do not change much, it would pay to get them then, and save them until they are needed. The same thing applies to woven underwear, which can be bought at the close of the season for about half the regular price. Beautiful pieces of woolen goods in remnants large enough for children's dresses are cheap and do nicely for their best dresses. Every-day dresses can usually be planned from those that have been worn by other members of the family.

I found among my possessions this winter a sack coat of light-colored all-wool goods which did not fit any member of our family. I was looking over it one day when the idea came to me that a pretty jacket for one of the little girls might be made of it. It was examined and found to be very good, but considerably soiled. The lining was taken out, the seams ripped and the pieces dusted and washed in warm suds, then dyed navy blue with Diamond Dye. A good jacket pattern was obtained for a few cents and placed on the goods to see how it could be cut to the best advantage. The places for buttons and pockets were marked with chalk on the goods. The fronts were faced, the lapels and pockets fixed and stitched before joining the fronts to the rest of the pieces. After it was basted together the jacket was tried on but no changes were needed and it was sewed on the machine. When the seams were pressed open a double row of buttons from an old cloak put on the front and the usual finishing touches given, the child had a very handsome garment. Other colors might have been used if preferred, for the diamond dyes come in all the dark handsome shades. If you have light colored goods they might be dyed red, and there are few children who would not like a red jacket trimmed with black or white braid.

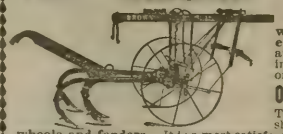
Little boys are often fitted out with suits that are "made overs." A trim suit for the little man of the family was devised from the back widths of heavy navy blue serge dress-skirt, carefully turned and sponged before making it, trimmed with gold-colored braid. When we think of thousands of shivering, half-clad bodies that suffer every winter for lack of sufficient clothing, and remember that there are closets and chests crowded with good but cast-off garments that would relieve the destitute, we hope that some plan of distribution may be found that would be satisfactory. If they are courteously and lovingly tendered few needy people will fail to receive them gratefully. E. J. C.

SHE KNEW.

Mrs. Cumso—"Your husband dresses very quietly."

Mrs. Cawker—"Does he? You ought to hear him when he breaks a shoe-string or steps on a safety pin."

THE "GENUINE" BROWN CULTIVATOR.



THIS IS OUR REGULAR STEEL BEAM CULTIVATOR, with flat lifting springs, rocker couplings and expansion cross bars between beams. The shovels are fitted to slotted attachments which admit of changing the position of the shovels so as to throw the earth to or from the row.

Of special advantage in hilling for potatoes, etc.

This cultivator is equipped with four shovels, or four shovels and two bull tongues, as ordered. Steel wheels and fenders. It is a most satisfactory and desirable implement. Send for our large illustrated catalogue before buying. We send it free upon request.

BROWN MANUFACTURING CO. Dept. O, ZANESVILLE, OHIO.

DRAIN YOUR LAND and use AGRICULTURAL LIME. You will double your crops. We sell all sizes

Farm Drain Tile,

TERRA COTTA PIPE LIME, CEMENT, PLASTER, FIRE BRICKS, &c.

Write for prices. WARNER MOORE & CO., Richmond, Va.

5,000 Farmers Wanted



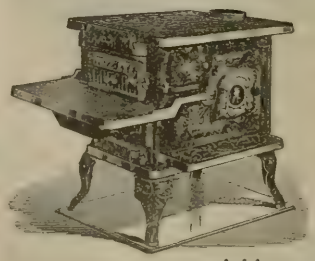
to take advantage of this grand offer, for 30 days only, to introduce the . . **GLOBE CREAM SEPARATOR.**

Any 10-year-old child can operate it. Does the work of a $100 Separator. After we get a limited number sold, then the price will be regular, which will be double. Take advantage of this grand offer. Money must accompany order. Price for 10 gallon size, $3; 15-gallon, $3.50; and 20-gallon, $4. Registered letter or postoffice money-order. Write for circulars.

THE NATIONAL CREAM SEPARATOR CO., Dayton, Ohio.

REFERENCES.—Dayton National Bank, Agent American Express Co., U. S. Express Co., Dayton, Ohio.

Why Pay Enormous Prices



for your Cooking Stove or Range, when you can buy direct from the Factory and save one third of the cost?

Write for Catalogue and full particulars.

Manufacturers of the celebrated *FITZ LEE COOKING STOVES*

Address

SOUTHERN STOVE WORKS,

815 to 827 North Seventeenth Street,

RICHMOND, VA.

HOW TO CARE FOR LACES.

The reason so many persons find their handsome laces, which they treasure so much, in such a deplorable condition—dingy looking and full of small holes—is, because they fold them up and put them away in the dark too long.

It is better to clean laces that are slightly soiled, and if very dirty and soiled looking, wash them. They will wear longer.

To clean laces that are but little soiled, powdered magnesia is effective. Sprinkle some upon a smooth sheet of wrapping paper, lay the lace upon the paper, and sprinkle more magnesia over it; cover with another sheet of paper, and place a book or some light weight upon the paper, letting it rest there several days. Then take the lace up, and shake the powder out carefully with a camel's hair brush. When lace is very much soiled—even the handsomest piece of Honiton, point or duchesse—can be washed successfully. It should be sewn upon strips of muslin, each little loop caught down with a stitch to the white material upon which it is basted; then roll this tight around a smooth glass bottle, and fasten it on securely.

Make a suds of warm water and pearline, and drop the bottle into the suds, and leave it there for several hours. Make fresh suds as soon as the first suds look soiled, and repeat the process, patting the lace every now and then with a soft towel. Rinse in several warm waters, and then dry the lace on the bottle either in the sun or out in the air.

Remove very carefully, clipping every little stitch, and lay it away in a perfumed box, but open it and turn it over and around to get the air, and it will serve you and the next generation as well. S. J. H.

BEEF JUICE FOR SICK PEOPLE.

For ages our mothers and grandmothers have prepared "beef tea" for their sick by process of long boiling, believing that in this way the real essence of the meat was secured, while present-day experiments show that "a dog will starve to death quicker when fed on boiled beef tea than on fresh water." I give a recipe taught me by a trained nurse and used in all the large hospitals. It is thoroughly reliable. Take fresh beef, as lean as you can get it—the round steak is best. Grind or chop it very fine. Throw it in a pan on the stove and let it get hot through, stirring all the time. Turn it into a napkin and press all the juice out. It should be a rich dark red, and one pound should make six ounces. Be careful to skim off all the fat. To serve this to the patient pour a teaspoonful or more on a little crushed ice; season with salt. This is as nourishing as the bought juices, and far pleasanter to take.

VIRGINIA.

ANTI-EXPANSIONIST.

"Mildred," said her father, "I am willing that the young lieutenant who comes here should make a calling-station of my house this winter, but if he ever hints at annexation, you can tell him that I am unalterably opposed to it."

Not in the Fertilizer Trust..

THE ODORLESS SLAG PHOSPHATE is not in the Trust. We are selling at old prices Orders must be sent in early to ensure prompt shipment.

Address **JACOB REESE,**
400 Chestnut Street, PHILADELPHIA, PA.

FERTILIZERS—FROM FACTORY TO FARM

WE SELL YOU DIRECT. NO AGENT'S PROFITS.
NO SALESMAN'S EXPENSES.

VALUABLE PREMIUMS GIVEN FREE.

For premium list, prices, samples and book, write

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* VIRGINIA DIVISION. *

Farmers Mutual Benefit Association.

A Fire Insurance Association, chartered by the State for the farmers of Virginia, under an amended and well protected plan.

Insures, against Fire and Lightning, only country property—no stores or unsafe risks. Average cost per year for three and a half years has been $4.00 per $1000, including dwellings, barns, produce, &c. Cost in 1899, $2.00 per $1000. Amount of property insured $240,000. Estimated security in real and other estate, $600,000.

For further information, address, **CHAS. N. FRIEND, General Agent,**
MENTION THIS JOURNAL. **CHESTER, VIRGINIA.**

CHARTERED 1870.

Merchants National Bank

OF RICHMOND, VA.

Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.

Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

Capital Stock, $200,000
Surplus and Profits, $330,000

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THE BIG FOUR SYSTEM, from Chicago, St. Louis, Peoria, Indianapolis Sandusky and Cleveland;

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H. W. FULLER, Gen. Pass. Agt. C. & O. Ry., Washington, D. C.

BROUGHT IN PA'S PRAYERS.

Once upon a time sickness came to the family of a poorly-paid pastor of a rural church. It was winter, and the pastor was in financial straits. A number of his flock decided to meet at his house and offer prayers for the speedy recovery of the sick ones, and for material blessings upon the pastor's family. While one of the deacons was offering a fervent prayer for the blessings upon the pastor's household there was a loud knock at the door. When the door was opened a stout farmer boy was seen wrapped up comfortably.

"What do want, boy?" asked one of the elders.

"I've brought pa's prayers," replied the boy.

"Brought pa's prayers? What do you mean?"

"Yep, brought pa's prayers; an' they're out in the wagon. Just help me, an' we'll get 'em in."

Investigation disclosed the fact that "pa's prayers" consisted of potatoes, flour, bacon, corn meal, turnips, apples, warm clothing, and a lot of jellies for the sick ones.

The prayer-meeting adjourned in short order.—*Selected.*

THE CASH SUPPLY AND MANUFACTURING COMPANY.

We have recently received from the above firm at Kalamazoo, Mich., their 1900 catalogue. This is a large and attractive book of 100 pages, full of offers of Vehicles, Farm Implements, Feed Cutters, Horse Powers, Sewing Machines, and in fact, everything needed on the farm. The motto of this firm is, "Quality first always." Our readers are invited to send for their catalogue, and we have no doubt but what they can pick out some very fine bargains for themselves.

OUR LANGUAGE.

Tommy—"Pop, a playwright is a man who writes plays, isn't he?"

Tommy's father—"Yes, my son."

Tommy—"Then is a wheelwright a man who writes bicycle news?"—Philadelphia Record.

A GRAZER'S IDYL.

A pedigree sire and young scrub cow
Will wipe the mortgage off the plow;
Will grease the wheel of the whole concern,
If the calf is kept to run the churn.

W. M.

"GRASSES AND FORAGE PLANTS."

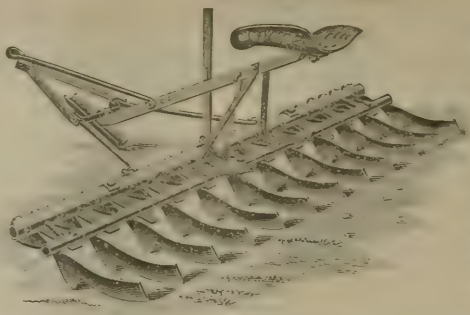
By J. B. Killebrew.

We will give a copy of this valuable work to every subscriber who will pay two (2) years' subscription to the *Southern Planter*, or will pay for one year and send us a new subscriber. The offer in our March issue is changed to the above.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

Mention the Southern Planter when corresponding with advertisers.

THE ACME HARROW.



The Acme harrow shown herewith is a familiar tool to most all readers of the *Southern Planter*.

This harrow is in a high degree just what its name implies, for it crushes, cuts, lifts, pulverizes, turns, aerates and levels the soil at one operation. It is endorsed by leading agriculturists everywhere, and is now being successfully used by hundreds of our readers. Being manufactured entirely of cast steel and wrought iron it is practically indestructible, and will last indefinitely. The faith and fairness of the manufacturer are widened by his offer to send the "Acme" to any responsible farmer anywhere on trial, same to be returned at his expense if not found entirely satisfactory. Could anything be more fair or reasonable? Write Mr. Nash for catalogue, prices and free booklet, "An Ideal Harrow." Kindly mention this paper in writing.

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

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FRANKLIN DAVIS NURSERY CO., Baltimore, Md.

Elmwood Nurseries.

We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.

APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,

QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.

POLAND CHINA PIGS.

BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.

WRITE FOR DESCRIPTIVE CATALOGUE.

J. B. WATKINS & BRO., HALLSBORO', CHESTERFIELD CO., VA.

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KEYSTONE ADJUSTABLE WEEDER AND SHALLOW CULTIVATOR...



NARROWED TO 30 IN.

"Light surface cultivation is all that will be required for most crops, and prevent the disturbing and breaking off of any root, which is usually done with an ordinary cultivator."

H J PATTERSON, DIRECTOR,
Maryland Agricultural Experiment Station.



EXPANDED TO 7½ FT.

POINTS OF SUPERIORITY OVER A STRAIGHT FRAME WEEDER.

It is adjustable both as to depth and width. Can be narrowed to 30 inches and expanded to 7½ feet. When narrowed up to 30 inches it can be used between the rows, working close to the plants—**long after straight frame weeders are set aside.** Being A shaped, it is not only stronger, but adapts itself much better to uneven surface than a straight frame weeder. It has no shafts, therefore no horse motion, and will not jump. Teeth are strong and pliable and have blunt points, which is important when working sensitive plants.

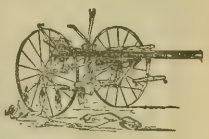
KEYSTONE FARM MACHINE CO., Ltd., York, Pa.





10 styles of **CORN PLANTERS**, all arranged so that the operator can always see the corn dropping.

12 styles of **CULTIVATORS**, with all latest improvements.



20 styles of **CORN SHELLERS**, also HARROWS, FIELD ROLLERS, FEED-CUTTERS, Etc.

WRITE FOR DESCRIPTIVE CIRCULARS AND SAVE MONEY.

PEDIGREES TRACED AND TABULATED. CATALOGUES COMPILED AND CIRCULARS PREPARED.

..Fine Road and Trotting..

HORSES..

FOR SALE BY

W. J. CARTER (Broad Rock),

P. O. Box 929 RICHMOND, VA.

IN THE STUD FOR 1900.

THE IMPORTED.. HACKNEY STALLION "THE DUKE"

By SILVER STAR, dam FANNY, by ROB ROY.

FEE, $10.00.

Usual return privilege granted in case of failure of mare to prove in foal.

NOTE.—The Duke has good looks combined with great substance and powerful muscular development, which are transmitted to his get.

Further information supplied by

T. O. SANDY, Owner, Burkeville, Va.

Grand Auction Sale of High-Bred Horses

By the McCLEARY AND McCLELLAN LIVE STOCK COMPANY, Norfolk, Va.

ON TUESDAY, APRIL 17TH, 1900.

The offerings will include fine combined Saddle and Harness, Fast Roadsters, Speedy Trotters and Pacers, and a number of extra good business and general purpose horses, to be sold for the high dollar. These horses are consigned by some of the best known breeders and dealers in Kentucky and other States.

N. B—Remember the date, Tuesday, April 17th, 1900. For further information address the

McCLEARY AND McCLELLAN LIVE STOCK CO., Norfolk, Va.

STOP AND THINK

WHAT OUR GASOLINE ENGINES ARE, and hear what those who have bought them have to say.

Such success was never known No fire: no danger. Simple as a hoe. The heaviest part of our business is with Gasoline Engines. We furnish them from 1½ horse to 75 horse power.

Near SEVEN PINES, VA.,
Feb. 10 1900.

DEAR SIR,—Concerning the 1½ horse-power, "Jack of all Trades" Gasoline Engine bought of you. I can truly say to all any or many men. With ordinary intellect can run the engine as well as any mechanic. As for the risk of "bursting," I think it is absurd. It is started and can be left alone without any fear of accident in any form, of course it must be kept oiled like any other machine. With ordinary care I don't see how any one can have any trouble managing the Engine.

Yours respectfully,
WM. HARPER DEANE.



1½ HORSE-POWER GASOLINE ENGINE.

Is not pumping water a task? You need not le it worry you any more. Any hour of the day or night you can set it to work in a minute.

GREENVILLE, N. C., Nov. 22, 1899.

DEAR SIR,—The 1½ horse-power "Jack of all Trades," engine arrived. I set it in position and started it by myself, and it is a perfect success. Send me some circulars to hand my neighbors.

Respectfully,
S. E PENDER.

PETERSBURG, VA.,
Feb. 24, 1900.

DEAR SIR,—Please find my check in payment for the 4 horse-power Gasoline Engine. Mr. Gibbs, my manager, tells me the Engine proves satisfactory.

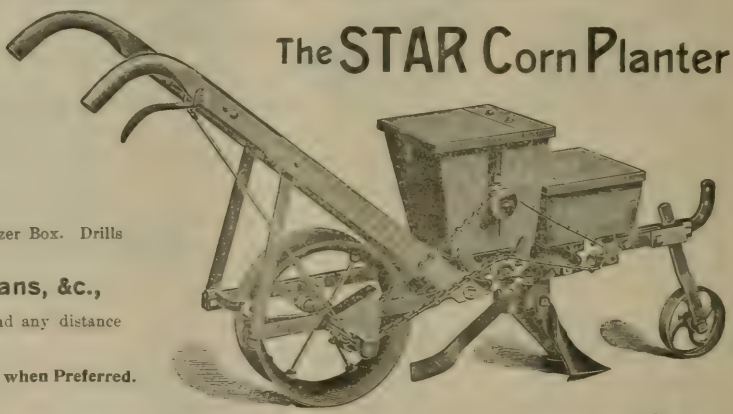
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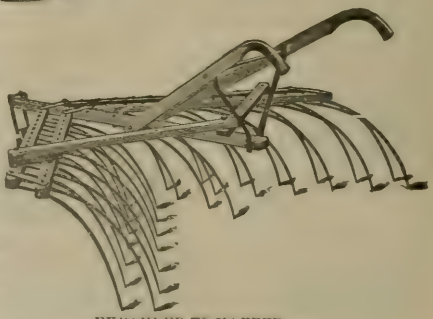


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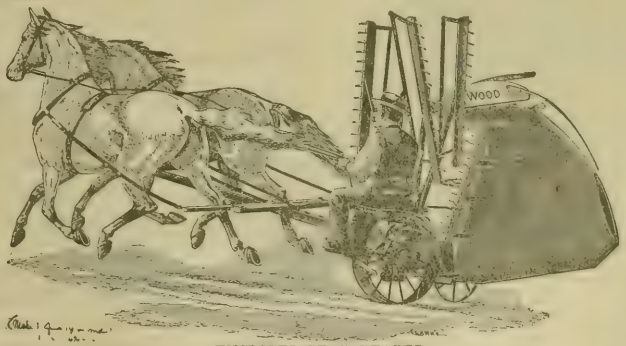
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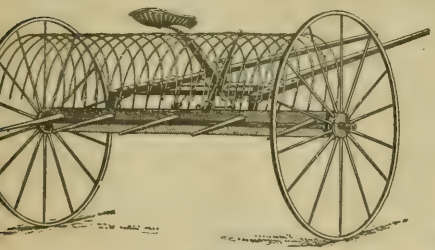
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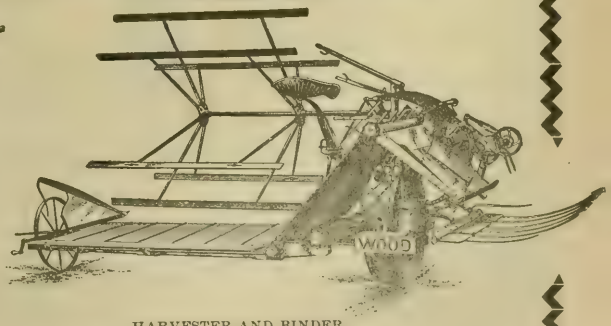
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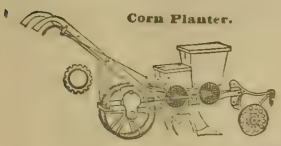
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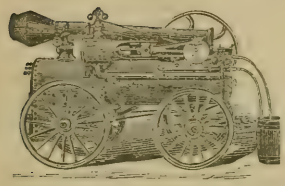
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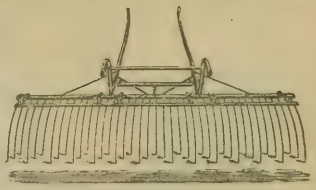
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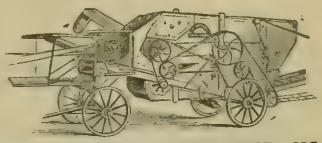
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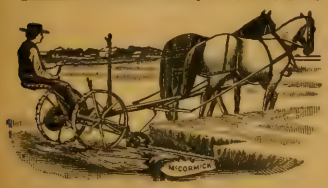


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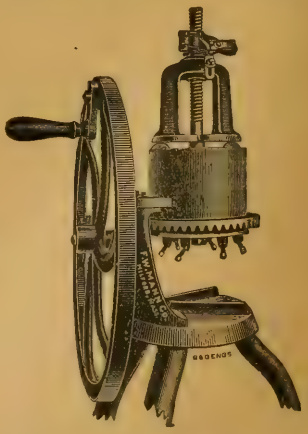
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Vol. 61. MAY, 1900. No. 5.

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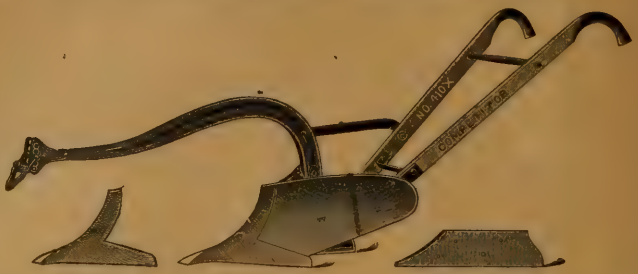
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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, May, 1900. No. 5.

Farm Management.

WORK FOR THE MONTH.

Cold unseasonable weather has continued throughout nearly the whole of the month of April, and this condition applies to the whole of the Atlantic Coast States from Maine to Florida. Peculiarly, a precisely opposite condition of weather applies to the whole of the Pacific States. On the East we have a season fully a month behind the average, whilst on the West the season is fully a month ahead of the average. This will probably affect markets very much all through the year and cause much conflict of prices for many products. In the extreme South heavy and continuous rains are causing disastrous floods and doing much damage to crops already planted, and hindering the planting of those which should be now growing. In this State, whilst we have had no very disastrous floods we have had much cold rain and work is badly in arrear. When the weather changes farmers are going to find themselves with more work on their hands requiring immediate attention than is likely to be done well, and the result will probably be a reduced area planted and much seed put into land not in the best condition for making a good crop. Fortunate is the farmer who made good use of his time last fall and got his land plowed for his spring crops. It will be much more quickly got into good order than if now to plow.

In our last month's issue we dealt with the question of the fertilizing and planting of the corn crop. We propose now to say something as to the cultivation of it. Cultivation has two ends in view. It causes destruction of weeds and grass and it conserves moisture in the soil. Of the two, the latter is the more important, for corn planted on good fertile soil, well prepared and finely broken, if it once gets the start of the weeds, will always keep ahead of them if only sufficient moisture is conserved in the soil to support and maintain its growth. Bearing this in mind, it will be seen how important it is that the land should be in such a finely broken condition that cultivation can be perfectly carried on. To conserve the moisture in the land, the surface must be kept covered with a mulch of fine, loose soil. The depth of this mulch has much to do with the water content of the underlying soil. It has been found that cultivation to the depth of three inches will leave the ground more moist below the soil stirred than cultivation 1½ inches deep, to the extent of keeping in each square foot of soil 1¼ pounds more of water in the upper two feet of soil, and this difference has occurred too where, in the majority of cases, there has been a larger production of dry matter and presumably a larger consumption of water by the crop.

Another conclusion also reached by means of these experiments in depth of cultivation is that, not only is the two feet of soil under the three inches cultivated moister than the two feet under a surface cultivated 1½ inches deep, but that this two feet of moist soil is able to draw up water from the deeper soil much quicker

than is the two feet of soil under the 1½ inches cultivated. These facts have a most important bearing upon the yield of the corn crop, and cannot be too strongly emphasized. Cultivate the crop frequently, but never cultivate deeper than four inches nor less than two inches. The first two or three workings may well be given with a sharp-toothed harrow. Although this looks like treating the crop roughly, we never found any harm done by it worth consideration. We think it very beneficial to harrow the land on which corn is planted just before the plants break through the soil. This loosens the ground, aids germination, and, more essential still, kills the young weeds and grass just starting into life, and permits the corn to get ahead of these hindrances to its growth. The subsequent cultivation of the crop should be with the Iron Age cultivator or a riding or walking cultivator like the Ohio cultivator. We are strongly averse to the use of the plow as an implement for the working or cultivation of the corn crop. It is out of place in a corn field after the crop is planted, as a rule. It may sometimes be admissible to use a small one-horse plow in the rich river low grounds where weeds, such as the morning glory and other climbing vines, are very abundantly growing in the rows between the corn plants. These cannot be checked by the use of any kind of cultivator, and must either be cut out by the hoe or be buried with the soil. In such a case a very light furrow thrown on to them will save much hoe work which cannot be afforded. Keep the cultivation level. There is never any necessity whatever to throw a hill of soil to the plants at any time during their growth. It is a mistake to suppose that throwing a hill to the corn helps to keep it standing. To throw such a hill as would effect this would mean the cutting of so many roots as to materially injure the yield of the crop. If no roots are cut in cultivation they will extend so widely around the plants and so deeply as to effectually stay the stalk. There is another evil in hilling a corn crop. It exposes a larger surface of the soil to the action of the sun and thus deprives the crop of much moisture which it greatly needs. Cultivate frequently, cultivate shallow, cultivate level, and cultivate as long as the team can go through the crop without injuring it. At the last cultivation sow cow-peas, Sapling clover or German clover, and thus endeavor to secure the growth of another crop which will help the land and make feed in the fall and spring.

In our last issue will be found advice on the planting and fertilization of the cotton crop. The cultivation of the crop should be on the same lines as above advised for the corn crop. All indications point to the planting of a very large cotton crop. It may, however, be that the floods in the South and the late season may somewhat curtail the area. If so, we shall not regret, as we much fear that too much may be planted to be profitable. We would urge that whatever be the area planted in cotton, sufficient corn be planted to meet home requirements, and that cow-peas and other forage crops be planted to make feed for stock and improve the land for another year's crop. There is no reason whatever why, with cow peas, soy beans and sorghum, every cotton planter should not make his own meat at less cost than he can purchase it, and at the same time fit his land to make a better cotton crop next year. We would urge that every cotton planter read the article in this issue on forage crops.

In our last issue will be found an article on the tobacco crop, to which we invite attention. See that the land for the crop is well prepared and ready for planting when plants and the season are ready. Mr. J. M. Barker, one of the largest and most successful tobacco planters in this State, thus describes his method of planting and cultivating his crop:

"The next thing of importance is to have good tobacco growing land. I usually select gray gravel soil for fine tobacco. I prepare my land thoroughly just before my plants are ready to set out. I lay off my land three and a half feet between the rows, and make the hills or pats three feet in the row. I drill from 400 to 500 lbs. of some good fertilizer to the acre.

When I get a season for setting out, I draw out the largest plants first and keep them separate from the others, as a large plant will usually grow off quicker than a smaller one; by this plan I have my tobacco more uniform in the field. I never like for my plants to get bruised or the roots to get dry, as this will prevent them from starting off early after they are set out.

When I set out my tobacco I want to work it just as quickly as I can; this working will give the plants an early start.

Never let your tobacco get grassy, as this will stunt its growth, and make it small and probably late. I lay my tobacco by, or stop cultivation when the plants are about ten or twelve inches high. I never like for my land to bake, and I usually plow my tobacco after every hard rain until I lay it by. Some say that when it is raining nearly every day that they cannot keep the grass out, but I find by using cultivators I can soon run over my crop, and should the ground continue too wet to plow, I take hoes and scrape around the plants. By this plan I keep the grass out without injury to the tobacco."

The peanut grower should get to work preparing his land as soon as possible, as the crop should be planted this month. In recent issues we have published several articles on this crop, to which we invite attention. As a fertilizer for the crop, we would advise the use of 100 lbs. of acid phosphate, 250 lbs. of kainit, or 60 lbs. of muriate of potash and 300 lbs. of cotton seed meal to the acre. This will approximately

meet the needs of a crop of sixty bushels to the acre. Lime is needed in the soil for the successful production of peanuts, and if not present should be supplied before planting. What peanut growers, however, most need is a better system of rotation of crops on their lands so as to keep the soil filled with humus and fertility. The growing simply of corn and peanuts is not farming; it is soil robbery. The peanuts should be followed by small grain and clover and grass, and upon the sod should be placed all the farm-yard manure. This should be followed by corn and then by peanuts, to which acid phosphate and potash should be applied. The peanut being a legume, largely gathers its own nitrogen from the atmosphere, but this may need supplementing with some cotton-seed meal or tankage to secure a fall crop.

In this issue will be found an article dealing with the various fodder crops, which can and ought to be grown on every farm. The article is written in response to numerous enquiries for information on these crops, and we trust will be found useful.

Mangold Wurtzel and sugar beets should be planted this month for stock feed. They require land in a good state of fertility and finely prepared. As a fertilizer for sugar beets, use a complete fertilizer having, say, 7 per cent. of phosphoric acid, 8 per cent. of potash, and 7 per cent. of nitrogen, applied at the rate of 400 lbs. to the acre. For Mangold Wurtzel beets, farm-yard manure will be found most profitable.

FORAGE CROPS.

For several years past we have devoted much space to the question of the production of forage crops of various kinds in the Southern States. We are satisfied that in so doing we are advocating the adoption of a system of husbandry which is bound to result in a greater profit to Southern farmers than the continuation of the old system of growing only corn, cotton and tobacco. The South, to become agriculturally prosperous, must become a live-stock breeding and feeding section. It cannot do this without forage crops, and these, to be successfully grown, must be mainly annual crops. Whilst it is true that grass can be grown, and grown successfully, over the larger part of the Southern States, yet, except in the highlands of the Piedmont sections, it cannot be grown except as a rotation crop standing, at most, for two or three years. Our climatic conditions are not, except in these sections, favorable to permanent meadow and pasture lands. Those climatic conditions, however, are, on the other hand, most favorable and conducive to the production of annual forage crops; indeed, they are, in this respect, better than in any other part of the United States. With these crops the fertility of our lands can be restored and maintained and live stock can be grown and fattened when these crops are fed in conjunction with our corn and cotton-seed crops as cheaply as in any other section of the country. Amongst these annual forage crops are to be found the great family of leguminous plants which possess the power of abstracting from the atmosphere the most costly fertilizer necessary for their production and for the improvement of the land. This family of plants is also the great source from whence we can derive at the least cost the humus so greatly needed in the restoration of the lost fertility of our lands, and which alone can make them fully responsive to fertilization and good farming. No system of rotation which fails to make provision for the growing each year of forage crops, and especially of leguminous crops, can be commended as a good system and one to be followed. To rely only upon the corn stover and straw produced by the crops planted for grain for the support of the live stock which ought to be carried on the farm, is to sacrifice a great source of profit. Whilst these products ought to be carefully saved and fully utilized for feed and for the making of manure, they ought to be supplemented on every farm by crops specially grown for feed. Where such a system is not practised, every spring finds hundreds of farmers short of feed for stock, and if, as is the case this year, the season happens to be a late one, much suffering and loss results. Hundreds of tons of hay have been bought in the city markets this year by farmers to save their stock from hunger—hay which has been brought hundreds of miles from the West, and which was sold for prices higher than for years past. Not one ton of this hay need have been bought had proper attention been paid to the production of forage crops, whilst the needs of city markets for city consumption alone could have been well met with Southern grown hay realizing a good profit on its production. Ten cent cotton, 10 cent tobacco and 50 cent corn will not afford to buy $15 hay to feed the animals which produce them; nor can beef and mutton at 5 cents or hogs at 5 cents be produced profitably upon $15 hay or 50 cent corn alone. The long feed and roughage which forms so large a part of the ration of subsistence of the animals, must be produced on the farm if profit is to be made in the making of these products, even at present market prices.

The principal forage crops, for which provision should now be made in setting out the land for crops, are ensilage corn, sorghum, cow-peas and soy or soja beans. As adjuncts to these, Kaffir corn, millet, teosinte and velvet bean (for the more Southern States), and beggar weed for the extreme Southern States, may

be grown. For early fall seeding, alfalfa, red clover, crimson clover, hairy vetch, and the winter vetch should have attention.

At present, we will confine our attention to the crops first mentioned, for which the land should be prepared and the seed be planted as soon as the soil is warm.

Where a large head of stock is to be provided for, there is no food so safely to be relied upon as good ensilage, and no stock-farm can be considered fully equipped to care for its live animals economically which is not provided with one or more silos. To fill these, corn is the crop that should be planted most largely, not that good ensilage cannot be made out of other crops, or that a better balanced feeding ration than simply corn ensilage cannot be made, for in these respects ensilage made from sorghum, or, better still, from a mixture of corn or sorghum and soja beans will be better, but that corn is the most certain crop on which to rely for a heavy yield on a limited acreage. The best corn to plant for ensilage is Virginia ensilage corn, as it makes a larger growth with more fodder than any other variety. However, any large growing variety of corn can be used. The land should be as well prepared as for growing the crop for the grain, but planting may be deferred until June if the press of other work makes this necessary. There is ample time for the crop to grow and mature sufficiently between June and the end of September. Plant in rows three feet apart, with the seed dropped from six to nine inches apart in the rows. This should produce a crop of from ten to twelve tons to the acre of green corn, and from five to six tons to the acre of cured stover and corn. Grown in this way, a large part of the stalks will make ears, and the stalk and fodder will be much better matured and fuller of nourishment than if seeded broadcast. Corn sown broadcast almost always makes ensilage of a poor, watery character, and very apt to be sour. Cut and put into the silo when the grains in the ears are just beginning to glaze. If there is no silo ready for the crop, cut and cure into dry fodder at about the same period of maturity as if for silage, and when well dried run through the shredder or fodder cutter and pack away in the barn as tightly as possible. It will heat considerably, but if free from water or dew when stored will not spoil, but make feed equal to most hay in feeding value. Fodder corn saved without being cut or shredded is apt to be very largely wasted in feeding.

Sorghum is of two kinds, the saccharine and the non-saccharine. The saccharine varieties are generally known as orange or amber cane, whilst Kaffir corn is one of the best known of the non-saccharine varieties. The saccharine varieties make the best green feed, silage and dry fodder. Kaffir corn is more resistant to drought, and makes more seed. The amber cane is the earliest, sweetest, and finest in growth. The orange cane is later in maturing and coarser in growth. Both varieties, however, make fine feed either green or dried, and are, in our opinion, to be preferred to Kaffir corn for all purposes except growth in a drouthy country. Sorghum does best in rich sandy loam. It is a stronger feeder than corn, and will make a crop on land too poor to produce good corn. Whilst it may be sown broadcast, yet it makes a better crop when sown in drills, and cultivated once or twice. Sown broadcast 1½ to 2 bushels of seed is needed per acre, whilst when sown in drills 1 bushel will be sufficient. The best time to cut the crop, either for green feed or dry fodder, is when it is in bloom. If intended for dry fodder it should be shocked like corn, and when cured be put into stacks or in the barn. It is excellent forage for growing animals, and one of the best of feeds for dairy cattle during the summer when pastures fail from drouth.

Kaffir corn may be grown and harvested in the same way as sorghum. If the seed is wanted for feeding, the crop must be allowed to stand until ripe, and then the heads be cut off.

Soy or Soja Bean.—This legume is one that has been found admirably adapted for growth in the South. It makes either good hay, a good grain crop or an excellent forage crop for hog feeding. As a crop for the silo it is the natural complement of corn. Corn is rich in carbo-hydrates whilst the soy bean is the richest of all crops in protein. When cut and mixed together in the silo the silage is almost a complete ration for stock. The land for the crop should be prepared as for corn, and the seed be planted in rows just wide enough to permit of cultivation. The seed should be dropped in the rows about 9 inches apart. Half a bushel of seed will plant an acre. Cultivate the crop two or three times until it is well started in growth. On good land the plants will grow 3 or 4 feet high, and branch out so as to cover the whole field. The seed pods are formed very freely, and from 20 to 30 bushels of beans are produced to the acre. The plants will continue to grow until checked by frost. If intended for hay or the silo the crop should be cut when in full vigor and growth. If to be made into hay allow to wilt and partially dry, and then throw into small cocks to cure out. If grown for hog feeding, turn the hogs on to the crop when the pods are beginning to ripen, and they will harvest the whole plant, and make fat faster than on any other crop grown. If wanted for the beans, allow to stand until most of the pods are nearly ripe, and then cut when damp with dew and throw into small cocks or heaps to cure out. These should not be handled more than necessary as the beans will shell out when dry. It is best to carry them to the barn when slightly moist with dew. As

the stalks are woody when mature they do not pack closely in the mow, and, therefore, will not heat injuriously even though stored slightly damp. The beans may be threshed out with the ordinary threshing machine if the concaves are taken out and plenty of room given for the stalks to pass through. The machine should not be run fast. Cattle and sheep will eat the stalks, hulls, and refuse from the machine with great relish.

Cow-peas.—We have said so much in the past on this crop that we do not think it necessary now to enlarge upon it. We would only say do not fail to plant every acre in cow-peas that you can possibly find time to put in up to the end of July, where no other crop is growing, and to this add the land in corn as far as you can do so when cultivating the corn for the last time. For hay, for hog feeding, and for land improvement no crop can be found to excel the cow-pea. A bushel of seed will seed an acre, and no cultivation is required. Sow broadcast and cultivate or harrow in. Scarcely a day passes that we do not receive letters from our subscribers commending this crop, and thanking us for having induced them to grow it. Cut for hay when the first pods are turning yellow, allow to wilt, and then throw into heaps to cure for 24 hours. Open and sun for a few hours, and store away in the barn packing closely. The bulk will heat considerably, but must not be disturbed. The point to be observed is not to store away damp with dew or rain and with the natural moisture of the plant dried out sufficiently so that when a lock of the hay is twisted tightly none of this will appear on the stems.

Cow peas and sorghum sown together make one of the finest forage and hay crops grown. Seed at the rate of a bushel of peas and a half bushel of sorghum to the acre. They make a feed which is almost a complete ration, and are easier to cure into good hay when grown together than when seeded separately. Successional sowings may be made from May to August, so that the work of harvesting may be distributed over the whole summer.

Wherever any of the forage crops we have named are sown on poor land a dressing of 300 lbs. to the acre of acid phosphate and 100 lbs. muriate of potash will help them very materially.

Experimental crops of *Velvet Bean* and *Teosinte* should be tried in all the Southern States south of this latitude. Velvet beans made a heavy growth in the neighborhood of this city last year, and we know of one or two farmers who were so satisfied with them that this year they propose to grow several acres. The great value of this crop is as an improver of the land. It is too coarse and strong a growth to make good hay, but the quantity of green matter grown to the acre is greater than we have ever seen in any other leguminous crop. The vines will grow from 10 to 20 feet long, and mat the whole ground over. The seed will not mature in this latitude.

Teosinte succeeds to some extent in the south of this State, and well in the States further South. It needs a long season of hot weather, a rich soil, and abundant moisture. In Louisiana it has made as high as 50 tons of green forage per acre, and in Georgia as much as 18 tons to the acre.

Beggar weed is a success in Florida and Louisiana, but we doubt much its success north of these States. It has been grown as far north as the Potomac, but other forage crops will be more profitable north of the Gulf States.

In our next issue we will say something as to the millet crop. June is soon enough to sow millet unless it is desired to grow two crops in succession, when the first should be sown in May.

BROMUS INERMIS (Smooth Brome Grass.)

In our last issue we remarked that this grass seemed to promise well for Virginia from the reports we had received. Since then we have received from Mr. Stone of Fluvanna Co., Va., a sod of this grass, which he says was sown November 1, 1899, on unfertilized land except that it had had a dressing of lime. The grass on this sod was when we received it on the 20th April, 12 inches high, and as thick as possible. This Mr. Stone states is the condition of the crop on all the plot. At the same time Mr. Stone sent us a sample sod of mixed grass and clover from a 50 acre field. This was sown September 1, 1899. The grass and clover, notwithstanding the late, cold spring, is fully 7 inches high, most luxuriant in growth, and bids fair to make a very heavy crop. On this field 200 lbs. of bone meal to the acre was applied at seeding. Both these sods are from fields seeded to grass or grass and clover alone. Mr. Stone says that he has 90 acres of such grass or grass and clover to cut for hay. Abundant evidence is afforded by these crops that in Piedmont Virginia grass and clover can be successfully grown when seeded alone as we have advised. Such a sod as Mr. Stone has got will not suffer from heat or drouth unless long continued. The grass and clover is deeply rooted, and thick enough on the ground to shade it.

PUMPKIN GROWING.

We have repeatedly in the past urged that farmers should grow pumpkins for stock feed. Our advice has not been largely followed. We desire again to urge the matter. Those who have grown pumpkins are more than satisfied with the crop. We have several friends who last year made large crops. One

gentleman made over 50 tons, many of the pumpkins weighing over 50 lbs. each. This crop was made in the corn crop, and without any additional expense except for the seed, and the grower says that he believes his corn crop was benefitted by the growth, as the pumpkin vines shaded the land and kept it moist, and thus kept the corn growing and feeding through a hot, dry season. We believe it will pay to grow the crop alone as the yield produced is very heavy, but it will certainly pay to grow in the corn field. Plant in May and June, dropping the seeds 8 or 10 feet apart each way. Pumpkins make a most wholesome feed for cattle and hogs. Like roots whilst they have not by analysis a high nutritive value, yet they are cooling and wholesome, and keep the stock in health, and with a capacity for eating and digesting more food, and thereby making a quicker and more profitable return in a shorter time. They may be stored in a dry shed or barn, and if protected from frost, will keep until spring. We have one weighing about 75 lbs., which has been on our office table since last October, and is now perfectly sound.

CORN-GROWING IN FLUVANNA COUNTY, VA.

Editor Southern Planter:

The April issue of the *Planter* has just been received, and my attention called to some questions asked by your correspondent, W. W. Green, of Hanover county, Va., as follows: "I saw in the February *Planter* that Mr. H. E. Wood, of Fluvanna county, took an acre of land, known in that section as worn out land, and made it produce 36⅜ barrels of corn the first year, after spring plowing and late planting." I never made any such statement, and if your correspondent will refresh his memory again, referring to the reports made by me in the December and February issues of the *Planter*, he will see that he has fallen into a palpable error. As to why the land in question had been turned out to grow pines and other nuisances, my reports explained that under a tenant system of taking away everything from the soil and giving nothing in return, it had become so reduced and impoverished that no one cared to rent it, and the land on the river became thickly overgrown with weeds, briers, bushes and trees. At the time it was plowed last spring most of the soil had become thickly overgrown with a Japanese clover sod, which made the land a very unsuitable preparation for cultivation after the corn had been planted so late in the spring which followed so soon after the breaking of this sod with the plow. I am still of the opinion that if this land had been plowed in the early fall the yield would have been greater. The rest which this land had for something like twenty years, along with the growth above mentioned and the overflows from the river leaving at times a deposit, caused the soil to rejuvenate or take on a new lease of life. At the time this land was abandoned I do not suppose an acre of it would have yielded five barrels of corn; perhaps not the half of it. As to the strip of land, 490 yards long and 10 yards wide, on which I harvested 36⅜ barrels of corn, I called the attention of your readers to the fact that it was extraordinarily fertile, and gave reasons for it. It was an alluvial deposit, not worn-out soil by any means. I desire to correct an error in the December issue of my report. I stated that eight or ten bushels of corn on the acre had been destroyed by muskrats, when the report read eight or ten barrels. There is no doubt in my mind about 49 barrels of corn having grown upon this acre of land. The land was divided into seven sections, 70 yards in length and 10 in width each. We gathered from each section five and a fraction barrels, until we reached Section No. 2, when we gathered three barrels, and then we ascertained by counting the stalks and estimating the number of ears, that muskrats had destroyed at least two barrels, or ten bushels. There were other losses on other sections from muskrats which I suppose had aggregated a barrel or two more.

My object in calling your attention and that of your readers to corn crops I have been reporting for several years to the *Planter* was to demonstrate what could be done on land well suited to the growth of corn; in other words, rich improved soil, trusting, as I do, that it may serve as an incentive to those who till the soil to improve it. I have not any other motive. In making these reports, if I should err, either by omission or commission, I am open to conviction or criticism, but wish either, to be tempered with justice. "In a multitude of counsel there is wisdom." We can only reach definite conclusions oftentimes by adverse opinions. I call Mr. Green's attention to two acres of tobacco I cultivated along with this corn crop on this twenty years ago "worn out" highland soil, trusting as I do that my observation and experience with this crop may be worth something to him and other readers of the *Planter*. This tobacco land, along with the corn land, was plowed late in April with the three-horse plow—a late and unsuitable preparation for the growth of the tobacco. I hauled from my stable and dumped 32 loads (four-horse wagon) of manure, spread it broadcast over the plowed land, harrowed it in, and when ready for planting the tobacco, I sowed in the drill about 200 lbs. of Gilt Edge fertilizer. One acre was planted, I think, the first week in June, the other ten or twelve days later. The first acre planted produced me the finest growth of tobacco I have ever seen, one plant of which, with the leaves stripped from the stalk, weighed about 16 oz. or one pound—a

very irregular and unusual growth for a plant of tobacco. I have it on exhibition at the office of our county newspaper, the *Midland Virginian*. Your correspondent will ask why this has happened with the growth of tobacco in Fluvanna and not in Hanover, as he has done about the growth of corn in counties so near each other—75 or 80 miles apart. Echo must answer why; I cannot tell. I know this, that the tobacco planted ten or twelve days earlier was more than doubly as good as that planted later, with all chances equal, which should serve as a guide to the farmers in this section of Virginia to plant their tobacco crop by the last of May, or earlier if possible, and not be content with having it planted by the 20th of June. Of late the seasons seem to have changed. Your correspondent says he saw nothing unusual in my mode of cultivating this corn. I stated in the report that some of the corn was six and eight inches apart in the hill, and some was fourteen, some rows were three feet apart, some less; some of the corn was dropped by hand, some with the planter; all was broken with the Iron Age Cultivator, and surface left level. Now, if Mr. Green is familiar with this method of cultivating corn, then nothing unusual has occurred; if, however, he is not familiar with my method of cultivating corn and has read the December and February issues of the *Planter*, and says there was nothing unusual about my method, he is again in error. Your correspondent says if Mr. Wood made this yield of corn under such adverse circumstances on "worn out land" (I have never so stated), how much would he consider was a maximum yield for an acre of land in a high state of cultivation under favorable circumstances? I do not suppose a more fertile spot of earth could be found than this acre referred to. I mentioned this in the December report, and I am forced to conclude that Mr. Green is a very careless, inattentive reader, or he unfortunately has a non retentive treacherous memory after reading. It is not unreasonable to suppose that land should have been worn out and abandoned twenty years ago and be in good condition to day. This would seem even more reasonable with land on water courses bringing with their overflow alluvial deposits and enriching the soil.

Fluvanna Co., Va. H. E. WOOD.

"LONG ACRE" DOINGS—ARTICHOKES.

Editor Southern Planter:

We have planted an increased acreage of artichokes this spring. We have found them extremely useful during the last eight months. We began feeding about the middle of last September, and we still have a few in kilns perfectly sound in the last week in April. There appears to be no reason why an abundant supply may not be carried up to the middle of May or later. We propose to do this with our present crop. This will furnish succulent food till rape comes in as a succession for the swine.

We had to stop feeding artichokes to the horses and mules about the first of January lest we came short for the hogs, as we did, in fact, greatly to our cost. If we had had another acre or two of the roots, it would have saved us several tons of mill feed and corn. The horses missed them greatly. Their coats became rougher and they suffered from constipation. Artichokes are better than carrots for horses. They are more laxative and they contain almost three times as much protein and about twice as much digestible nutriments generally.

There are two distinguishing characteristics in the chemical composition of the artichoke over all other domesticated roots—namely, its large percentage of protein and the peculiar nature of its chief carbohydrate constituent. The latter is in form of a substance somewhat intermediate between starch and sugar known as *inerlin*. There appears to be little, if any, starch in the tubers.

The artichoke has the merit not only of being a great yielder under easy conditions to the husbandman, but its total digestible constituents are also great. Add to these its keeping qualities, which enable the feeder to extend its use over a period of fully eight months (much of which is at a season when the earth produces but little succulent growth), and we have a plant which no economic stockman can afford to ignore. Moreover, it is practically proof against frost, fungous diseases and insect pests. Does it not come near being a free gift?

We have not as yet made any elaborate feeding experiments with the artichoke based on accurate weights of foods and animals, but I have before me several bulletins issued by different Experiment Stations, and reissued by the U. S. Department of Agriculture. These all give it a high feeding value. The Oregon Station found that hogs having the run of an artichoke field made a pound of gain on two pounds less of grain than those fed on grain alone. This is a remarkable showing, and to the experienced feeder it has a wealth of meaning.

The foliage of the artichoke is as nutritious as fodder-corn, and acceptable to all animals while in the green state. It may be profitably used as a soiling crop at the very close of the growing season. I have so used it, but I do not like to deprive the tubers of their laboratory at a time when their growth is most active. No doubt the entire stalk could be economically ensiloed just before frost is due. I remember an enquirer in the north part of this State asked, through the *Planter*, last summer, about the feasibility of put-

ting the stalks in a silo, but he received a disparaging reply from some one. I hope he tried the experiment, and will report. They are ensiloed in Europe, and reports of analyses give them a feeding value fully equal to that of corn silage.

We find it advisable to plant our artichokes on very rich land. We found last fall that the yield varied from 200 bushels to nearly 900 bushels per acre, according to fertility of land. The maximum yield is especially desirable when the tubers are to be dug and stored in kilns, as we propose doing largely next fall. The process of digging a bushel of tubers from four plants borders on the exciting. Tubers weighing from two to three pounds cause exclamations, even from colored diggers. We aim to get as rank a growth of foliage as possible, for here is elaborated the starch and sugar of roots and tubers. We have applied this year, in an experimental way, varying amounts and kinds of fertilizers, as well as much stable manure.

I notice Prof. Massey calls the artichoke a weed. All right; I rather hope it is. It is a lusty one. It is just as sweet under that name as any. Calling it names will not down it in the estimation of those who know its value. I suppose the potato was a weed before people knew its uses as a food. It know it solves a serious problem in swine feeding from December to May. It is as great an advance in swine feeding as corn silage is in cattle feeding. It has already become one, if not the chief one, of our *big six*.

Charlotte Co., Va. OLIVER C. WIGGIN.

A JOINT CROP OF CORN AND COW-PEAS.

Editor Southern Planter:

The common practice when cow-peas are to be grown amongst corn is to plant and cultivate the corn in the usual way and then sow cow-peas at the last cultivation. This plan is objectionable for several reasons.

1st. The corn is usually laid by too soon, and consequently does not receive sufficient cultivation.

2d. The peas receiving no cultivation are dwarfed in comparison with those cultivated.

3d. Much more seed is necessary to sow than to plant in drills and cultivate.

4th. Fertilizers applied to peas sown broadcast can be utilized only to a limited extent, cultivation being required.

Hence a better plan for a joint crop is to plant the corn in drills about seven feet apart, and at the proper time drill peas between the corn rows. The drills will thus be three and a-half feet apart, being alternately corn and peas. The corn should be planted as early as the season will permit, and the peas as late as is consistent with their maturing. After the corn matures the peas will utilize the fertility in the ground, and thus very nearly or quite a full crop of each can be grown.

Before planting the corn, a harrow, plow or cultivator should be run several times in the drill furrows, thus forming a loose bed. This plan has often about doubled the yield of corn.

If convenient, a good dressing of stable manure may be applied in the drills, to which may be added 200 lbs. of acid phosphate and 200 lbs. of kainit per acre. In lieu of the kainit 50 lbs. of muriate of potash may be used.

Mix thoroughly with the soil, preferably a few weeks before planting, and form a low ridge, which is to be opened for the reception of the corn.

The corn should be dropped according to the fertility of the soil and the quantity desired to be grown per acre. If you wish to grow 50 bushels, counting 100 stalks to the bushel, drop the corn for single stalks fourteen inches in the drill. If 70 bushels, twelve inches. If the land be highly fertilized and well prepared, the stalks will ear well, if they be only six inches apart. The largest yield of corn per acre ever reported (255 bushels) was grown by Capt. Drake, of Marlboro, S. C. The drills were six feet apart and single stalks in the drill, five inches apart.

The deep plowing in the drill furrows, above set forth, can be extended to the middle of the rows before the time for planting the peas.

For this climate from the 1st to the 10th of June is a good time to plant peas, such as the Black, Clay, Red Ripper, etc. The Wonderful or Unknown makes a remarkable growth of vines, but it requires the full season for maturity, and should be planted about the 15th of May. Consequently, it is not so well adapted for a joint crop as the varieties mentioned, being more apt to injure the corn.

A few weeks prior to planting the peas, 300 lbs. of acid phosphate and 400 lbs. of kainit per acre may be spread between the corn rows and be thoroughly mixed with the soil. One hundred pounds of muriate of potash may be used in lieu of the kainit. The peas should be drilled.

For seed purposes, the peas should be thinned to single stalks six inches apart. For hay or fertilizer purposes, they may be left thicker.

Cultivate the corn and peas thoroughly soon after each rain until the latter get too large to be worked. By this time the corn will probably be in the roasting ear stage. The first cultivation of the corn may be deep, the residue shallow.

The ground should never be permitted to bake. A few days of dry hot weather, with the ground baked, has ruined many crops of corn. A proper mulch of

loose soil will materially lessen if not wholly prevent such damage.

Pea vines draw the nitrogen needed from the air. Consequently, when turned under, when they mature, they return a bountiful supply to the soil, though no nitrogen whatever may have been applied direct.

For restoring worn lands the growing and turning down of leguminous crops, such as clover, cow-peas, etc., when mature, is most effective, as they add humus and nitrogen to the soil.

Moore Co., N. C. BRYAN TYSON.

WEEDS.

Editor Southern Planter:

I fully agree with your correspondent "Country," in the April number of the *Planter*, that weeds of any kind may be banished by good culture and a quick rotation of smothering crops. But the correspondent who asked about the wild onion has them in a permanent pasture and I have them in the College lawns. Now, it is hardly practicable on our College parade ground to adopt the plan that would be perfectly effective in cultivated grounds. Certainly, if I had a permanent pasture that was fit for plowing, I believe that I would put it through a course of rotation that would soon banish them and at the same time make the land better prepared to grow a fresh sod. But how to get rid of them in grass where it is impracticable to plow and cultivate, is the problem that confronts me. I propose to go to work and dig them out as fast as seen. It will be a tedious and expensive job, but I can see no other way, unless I had some of that English "lawn sand" that was years ago advertised in the English horticultural papers and warranted to kill weeds and at the same time encourage the growth of the grass. The transparent humbuggery of any such claim did not seem to strike the English horticultural public, for the advertisement appeared for years in respectable papers, and I suppose the stuff was sold. A weed has been defined to be a plant growing out of place; I suppose the "sand" would kill grass if it was in the wrong place. But what I want especially to confirm in what "Country" said, is the fact that the prevalence of weeds is the result mainly of bad farming and a long rotation. Short rotations of crops and smothering masses of peas and clover will soon make weeds scarce on any farm if clean culture is practiced with the hoed crops. The next thing is to inspect the clover seed sown. A field of clover full of narrow leaf plantain and ox eye daisy is an evidence of bad seed sown usually, and as I said last month, the great majority of our weeds have come to us in clover and grass seeds. And they will continue to come so long as farmers buy clover and grass seed of the lowest instead of the highest quality regardless of a small advance in the price. Clover seed sold below the regular trade rates for recleaned seed are so sold because of inferior quality, and the lower cost of the seed is paid for a hundred times over by the foul seeds that come in the low priced article. A dollar or so difference per bushel for clover seed will not pay for the labor and vexation of weedy fields. Farmers should buy clover seed by sample, and contract that the seed delivered shall come up to the sample, if that is clean. A little study of the appearance of the weed seeds that usually are found in a foul sample of clover seed will enable any one with a magnifying glass of fairly good power to detect the impurities, and a simple count of the percentage of weed seed in a small sample will show what is to be expected if that seed is sown. I know by experience that it is perfectly feasible to get clover seed that is perfectly pure clover and nothing else, for I have bought such after rejecting numerous samples that contained plantain and daisy seed, and at times cuscuta seed too. The only difference between the foul seed and the absolutely clean was about $1.50 per bushel, and the difference in the crop of clover was fifty time the extra cost of the seed. A good article of anything is worth more than an inferior one, and farmers with weedy clover fields are usually suffering from a penny wise policy that has stocked their lands with what they do not want, and which, nevertheless, they bought and paid for instead of paying for that many more good clover seeds. When farmers begin to realize that they are responsible for the weeds on their farms, there may be an awakening to the importance of getting clean seed from responsible men.

W. F. MASSEY.

"LONG-ACRE" DOINGS—SORGHUM.

Editor Southern Planter:

I hope all readers of the *Planter* have learned the value of sorghum as a soiling and hay crop. It adapts itself to more conditions of growth and uses than any other plant. It is a *waiting* plant, as some one has said of it. It is always green till frost takes it. Even then the stalks hold their juice till late in December, whether standing where it grew or in good sized shocks. It does not dry out for several weeks if the butt ends stand slightly embedded in the moist earth. This long-continued succulence makes it especially valuable as a soiling crop for hogs. We fed it last fall till the last week in December. It has excellent fattening properties when fed with corn. Like corn, it is deficient in protein, and it requires some food richer in this element when fed to growing animals. The soy bean is the perfect complement so long as it

lasts. When the pigs are confined in feeding-pens, any of the by-products, except cotton seed, can be conveniently used for a properly balanced ration.

When grown for soiling hogs, the seeding should be light, so as to give a fully developed plant, rich in seed and sugar. A peck of seed is ample for four acres. We plant in drills three feet apart, with a plant every six to eight inches in the row, on fairly rich land well tilled *before planting*. After planting, a smoothing harrow is run over it so as to get the land perfectly fine and level. As soon as the plants are two inches out of the ground, a Breed's weeder is used every three days till they are six to eight inches tall. After that, one or two cultivations with an Iron Age cultivator is all that is necessary. This amount of cultivation may seem rather formidable to some, but when the nature of the tools used is taken into consideration, it will readily be seen that it is really a matter of but a few hours. It pays. Proper tools, gentlemen; proper tools! This Virginia land needs proper tilth, first of all; it responds marvelously to tilth. It has never had it. It requires heavy teams at first, and always efficient tools. I notice land which I tackled two years ago required three large horses to handle it readily; now two horses handle it easily. The first year we cultivated it sixteen times. It was worked to the depth of fourteen inches.

Sorghum makes good hay, and an abundance of it. Beginners are generally nervous over the curing of it. This is needless. It will wait for the farmer's convenience from three to five weeks after cutting. It is difficult to injure. Rain injures it less than any other hay I know of. We mow ours and let it lay on the ground a week or two. If it rains meantime, and the growth be heavy, a tedder may be run over it after the surface is dry, or it may be turned with forks. Some convenient day, when there is no dew or rain on it, it may be put up in medium sized shocks and left till a convenient time for stacking. It should be stacked on a clear, dry, day. The shocks should be tipped bottom up and well shaken out. If the weather be warm and drying at the time of mowing, and the fodder be rather fine, it may be shocked the third day. But in this case the shocks should be opened in thirty-six hours to dry off the "sweat." It may then be shocked again to await one's convenience for stacking. The harvesting comes so late in the season the atmospheric conditions for curing are not so favorable as with earlier crops. For this reason it is better to plant early varieties, and as soon in spring as is safe—say, ten days after corn. The Early Amber is the best variety for all uses in our latitude. For soiling, two or three plantings, at intervals of ten days, should be practiced.

In stacking, we set a sixteen-foot pole in the ground and build around this, making the base ten feet wide and draw to a point at the top. Always keep the forage about two feet higher about the pole than at circumference from the very beginning. Build well above top of pole and leave it for two or three days and longer if the weather is not threatening. It will settle so as to leave the pole projecting a foot. This is to hold the cap. The cap is made of a very large armful of tall sorghum tied firmly near the tops with binding twine or wire. This bundle is divided in two equal parts and set firmly down on the pole well into the binding. The butts are then distributed evenly about the top of the stack. The wind cannot blow the cap off, nor can the stack settle away from the long thatch. It will shed water properly for several years.

For hay, sorghum should be heavily seeded—not less than a bushel and a half per acre. Even with this seeding it will make considerable attempt to form heads. It bears crowding remarkably. Be sure to harvest when in bloom.

That portion of fodder to be fed before the middle of January need not be stacked, but shocked like corn-fodder. Sow three pecks per acre for this treatment. When in bloom, set up in small shocks about a few living stalks, tied at top. In three or four weeks put about six of these small shocks in one larger one. Drive a six foot stake one foot in the ground and build the large shock about this stake. Tie the top securely, and it will stand till wanted. It will be found sweet and juicy for three months.

Early in June last we had two acres of land left on our hands, which we hardly knew what to do with. We prepared it finely and sowed three bushels of seed. I do not know how much we had, but it has been ample to winter twenty-four calves. I mean this has been their sole living from November to May. This is not scientific feeding. One feed a day of clover or pea hay in addition, would have been about the right thing.

OLIVER C. WIGGIN.

Nottoway Co., Va.

IMPRESSIONS OF THE SOUTH.

Editor Southern Planter:

A couple of months' time spent in a close study of present conditions in the Eastern Seaboard States, while planting experimental plots of China and Italian hemp, under the supervision of the United States Department of Agriculture, gave me some impressions of agricultural practices which I think could be improved upon with much advantage to the planters.

The chief shortcoming is the want of deep plowing. In all modern agriculture, deep plowing is proven to be of great advantage. It enables the plant roots to more readily search for food; it tends to hold moisture

in the soil available to the plant; it prevents baking, and allows surplus moisture to at once enter the earth to remain where the plant-roots can get it.

Deep tillage gives double fertility to a plant; the soil is neither as likely to suffer from drouth nor from over-moisture. The soil is warmer and the plant grows much faster.

Upon nine-tenths of the plantations, there are no two mule-plows. The one-mule plow is still used, plowing but two to three inches, and costing the planter twice as much as plowing five to six inches with a two-mule plow.

Beside the necessity for deep plowing, crops are planted upon poor, exhausted, impoverished soils. That is, the top of the land is exhausted, and no pains are taken to restore and deepen it. In a few instances cow-peas are appreciated, but there is no time to plant cow peas upon cotton lands, so a few handfuls of phos phate and meal are applied, and one fourth of a bale of cotton grown per acre where the yield might be four times as great.

Cow peas are the salvation of the old fields. Plant corn, and sow peas liberally when laying it by, or sow oats, rye, barley or wheat, in the fall, and fallow with a liberal seeding of peas. I know the yield may be doubled in this way, and I cannot resist the saying of it.

S. S. B.

P. S.—Broom corn is proved to be as successfully grown in North and South Carolina as in Illinois. B.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh. N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Fertilizer for Tobacco—Disease of Pear Trees—Grape Rot.

I have about two tons of wood ashes, and would like to know what to mix with them to make a fertilizer for tobacco?

I have a small pear orchard about ten or twelve years old. The bark on the body of the trees cracks open to the wood and the ends of the twigs die, and in consequence there is but a small bloom and none of the fruit comes to perfection. In fact, there have been but five pears on all the trees. Can you tell me what is the disease, and the remedy for it? My grapes are next to the pear trees, and they rot on the vines just before ripening. What shall I spray them with, and at what season? By giving me the above information through the *Southern Planter* you will greatly oblige,

R. S. ELLIS.

Buckingham Co., Va.

It is rather difficult to say just what to mix with the ashes without knowing the composition of the ashes. "Wood ashes" is rather an indefinite term, as they may contain but little potash, and may contain as much as 7 per cent. of it. I have never used ashes on tobacco, and do not know just how they compare in value for this purpose with potash salts. Another difficulty in using them to make a fertilizer is the fact that wood ashes contain a large percentage of lime, and if mixed with nitrogenous matters will tend to drive off the ammonia, and with acid phosphate they tend to revert and render less soluble the phosphoric acid. Hence I cannot advise the mixture. Better use the ashes on your corn field alone. They will give you good results there, and then make the tobacco mixture I have frequently given for your tobacco. Nitrate of soda, 100 lbs.; dried blood, 600 lbs.; acid phosphate, 900 lbs., and sulphate of potash, 400 lbs. to make a ton, and use 700 lbs. per acre. Your pear trees are probably pruned to too high a stem and are sun scalded on the west side. They are also suffering from the twig blight. At times there is a little twig biting beetle that produces the same effect, but generally the ends of the limbs are blighted by the fungus. Cutting out and burning the affected shoots is the only thing that can be done. Scrape the old bark from the stems and whitewash the trunks. Spray your grapes with Bordeaux mixture before growth begins in full strength, and afterwards twice with it, reduced to half strength. Second spraying just as the bloom is over and the third after the fruit is half grown. Write to your Station at Blacksburg, Va., for full directions.

W. F. MASSEY.

Curing Pea-Vine Hay.

The loft over our stable in which I store my hay made of pea vines, is weatherboarded 10 feet high, and slatted with 3 inch slats 1 inch apart, about 3 feet high. There is also a cupola on the stable slatted on four sides. These facts render the stable and loft quite open and admit a great deal of air.

1. Is it too open to cure pea vine hay on Prof. Massey's plan?

2. I contemplate building another large barn to be used for fattening cattle beneath, and curing and storing pea-vine hay above. Would you recommend that it be built tighter than the first mentioned stable?

3. I note that Prof. Massey recommends flat culture. Does he mean literally, no beds; perfectly flat for all crops?

4. How often does mare, cow, sow, ewe, goat, bitch, and cat go in season, and how long does each remain in season? What is the period of gestation in each? How soon after giving birth to young does each go in season again?

5. Is the Black Eye pea as productive and hardy as the Unknown? What is the usual yield per acre of the latter.

SUBSCRIBER.

Sumter Co., S. C.

1. I was of the opinion for some time that my suc-

cess in curing pea vines in the barn was due to the fact that I kept it tight. Subsequent observation has shown me that they will cure in quite an open barn if the mass is allowed to remain undisturbed while heating. My barn this fall was not kept close at all, and yet the hay is as fine as usual. Still, I think that I would prefer to have the sides tight, but upper ventilation is an advantage.

2. I would make the sides tight and put a ventilator above.

3. On high and well drained land I prefer perfectly flat culture. With cotton there is an advantage in planting on a slight bed in the early working of the crop, and protecting the tender plants from cold spring storms, but even with cotton the perfectly flat after culture is best. On low land not thoroughly underdrained bedding is necessary to assist in the surface drainage, and there, of course, we have to make an exception.

4. I will refer this to the editor or the veterinarian. I might answer as regards the gestation of cow, mare, and hog, but I have never bred goats, dogs or cats, and have not time to hunt up these things.

5. The large white black eye pea seems, so far as I have tested it, to be about as prolific as any in proportion to the vine. Varieties like the Unknown and others that make great vine growth are generally the most prolific, but take a longer season. Where the season is long enough for its full growth I do not think there is any pea that will surpass the Unknown in product of peas. I believe that when given room and well cultivated they will make 50 bushels per acre, which is three times as much as peas usually make. I have made this on a small scale.

Inventors in various places are now frequently writing to me that they have the machine that will thresh peas from the vines. I suppose that they hope for me to give them some free advertising. If a man has such a machine, and it will do the work thoroughly it should be easy for him to get capital enough to put it on the market and advertise it in the regular way. I have received favorable notices of several of these machines, but I am not in the free advertising business. I hope the owners will put them on the market. The makers might get legitimate advertising if they would send their machines to the Southern Experiment Stations for trial. If the Stations find them all right they will go right along.

W. F. MASSEY.

Rotation of Crops.

1. I wish to use the following rotation: First year, corn; 2d year, early potatoes, followed by late potatoes, and the latter to be followed by wheat. Third year, wheat stubble plowed and planted in cow peas for hay, followed by crimson clover, which will be cut for hay, and the stubble turned under for corn again. The design is to grow as much provender as possible, and have the wheat and potatoes to sell. Wanted to know if the best place for the fertilizer will be on the potatoes, and will a ton per acre be enough, if broadcasted, for all the crops in the rotation? Also, what per cent. of the essentials must the fertilizer contain. Can a suitable fertilizer be made from fish scrap and potash?

Will Orchilla guano fit anywhere in the rotation, or would it be better to use soluble phosphoric acid, and afterwards to use lime? Where would be the best place to use lime to correct any acidity? The manure made will be used elsewhere on gardens. Will vetch do better than crimson clover?

For a permanent pasture on new land that is sure to take in wire grass and broom sedge, is there any grass that will be better than wire grass, or that can crowd out sedge? Would Bromus Inermis be worth trying? or will it be better to encourage the growth of wire grass?

I have a few acres of land that I am thinking of planting in damsons, which do well here under neglect. Would any of the improved kinds, say French or Shropshire, do as well under the same conditions? The common kinds are never cultivated. How would it do to plant the better kinds, and use the lot for hog raising, so that all windfalls may be promptly eaten? What distance should the trees be planted from each other?

Would subsoiling be of any benefit in the rotation mentioned above, if performed previous to planting the potatoes? H.

North'd Co., Va.

The chief objection to your proposed rotation is that the wheat will come in after a heavy fertilization for the potatoes, and will be apt to develop too much straw, and will get to lodging. Then too the potatoes coming after corn do not have the best chance for a crop. I would prefer corn, followed by wheat, after having put all the home-made manure broadcast on the corn land. Peas on the wheat stubble cut for hay, and followed by rye and crimson clover in August or September. If the clover fails you will have the rye to turn under in the spring for the early potatoes, and in the fall again sow rye to turn under in spring with the home made manure for the corn crop. I am also of the opinion that you will find late potatoes following early ones will be a very uncertain and unprofitable crop, and as your object is to get forage, it would be better to follow the early potatoes with peas again, and then crimson clover and rye for the corn crop the following spring. By feeding all the forage you get in this way, you will soon have manure enough to cover your corn field, and the fertilization required for the early potatoes will carry the rotation easily and keep the soil improving. A fertilizer for the potato crop should have about 4 per cent. nitrogen, 6 per cent. phosphoric acid and 10 per cent. potash in

your soil. Orchilla guano would be of use perhaps on the wheat to be followed by peas, as it would become available to some extent for the peas. But it hardly pays to use insoluble phosphoric acid for a grain crop. The place for the lime in the rotation I have indicated would be on the land intended for corn, after plowing under the rye and crimson clover. Once in six years will be often enough, and on your land I would not use more than 20 bushels per acre. Vetch will be more sure to make a stand than crimson clover, but is worth a great deal less. The wire grass or Bermuda is the best pasture grass you can get. We have never tried the Smooth Brome grass. One experiment made at this Station a year or so ago did not impress me with it. It is claimed to be a better grass for permanent pasture than for hay. I saw it grown two years ago in New Jersey, and it seemed to promise a fair crop of rather coarse looking hay. It will probably help the wire grass pasture by keeping same green in winter, and it may be well to try it there. The Shropshire is a good damson, but I am of the opinion that our old, common damson will beat it as a market fruit. I would plant the trees about 15 feet apart, and cultivate well till well grown. Your idea of making a hog lot of the damson orchard is very good. A chicken yard would be still better, and the chief concern will be to keep the trees free from the black knot, by spraying and persistently cutting out the green knots, and burning them before the spores ripen. I doubt if subsoiling will be of any great use in your soil.

W. F. MASSEY.

Tomato Growing.

I wish to know if nitrate of soda will hasten the maturity of tomatoes.

Would you advise the use of nitrate of soda in preference to a 10 per cent. truck special guano (?) (on tomatoes)?

Will tomato plants bear ripe fruit *earlier* if they are transplanted a number of times before they are finally put in the field?

The general opinion here is that the more a tomato plant is transplanted the later it is, but the stockier it is.

Princess Anne Co., Va. BURTE C. HAINES.

A top dressing of nitrate of soda will certainly stimulate the plants to a more rapid growth, if applied after they are set and have started in growth. Whether there will be much hastening of the ripening of the fruit as a consequence we think is rather doubtful. Still a strong growth is needed for fruitfulness, and we find profit in the application of nitrate. Put it alongside the plants when they are dry, as it may cut the leaves if any touches them when wet.

Frequent transplanting under glass before the final transplanting I have always found to hasten the period of ripening. In one instance in my experience I had a lot of plants that were sown early in February in the greenhouse, and transplanted into flats in the same house as soon as large enough to handle. Later they were all set in the cold frames to harden off. Parts of them were again transplanted in the frames. These fruited ten days earlier than those that did not receive the last transplanting. One thing is certain, and this is that the earlier you can get the plants into the field and have them live the earlier they will ripen fruit. In 1894, the month of March was unseasonably hot. We had real hot summer weather from the last of February till the 26th of March, and vegetation of all kinds got into rank summer growth during March. On the 17th of the month, the weather was so warm and the soil so warm that I set a lot of tomato plants in the open ground, as it seemed that spring was settled for good. On the morning of the 26th, the mercury stood at 21 degrees above zero, but I did not loose a plant. The weather bureau sent out warnings of the coming cold wave, and the evening before I set to work and bent every plant gently to the ground, and placed a wisp of hay over it, and then shovelled a mound of earth over each plant. My figs were swelling their young fruit, and I bent the limbs to the ground and covered them too. Both figs and tomatoes were all right after the frost had passed, and I had ripe tomatoes the last of May. With good strong plants that have been hardened some in the frames, I had rather take some risk of frost, and get them in the field early, and then watch the weather reports. I do not know that the hay was essential, for I believe the mere covering with soil would answer, and a force of hands can bend down the plants and cover them very rapidly on a pinch. In market gardening, a week in advance of one's neighbor often decides the question between profit and loss for the season. Last season, a few strawberry growers down near Wilmington, in this State, made money on their berries before those up the railroad had started, and when the others came in there was a general rush of North Carolina and Norfolk fruit all at the same time, and no profit for any. In 1870, I was gardening in the northern part of the Eastern Shore of Maryland. I had 60,000 tomato plants that had been carefully grown and transplanted in the greenhouses and frames, and had been well hardened off. I set these plants in the field there the middle of April. Every one told me that I was certain to loose them, but as they were very well hardened and apparently tough I took the risk. About the first of May we had a hoar frost that whitened them all over, and I concluded they were gone. But as the morning rose with a fog, they were cleaned of frost before the sun struck them, and though they turned almost blue in the stems they were not hurt.

The result was that I began shipping tomatoes in quantity the last week in June, fully three weeks before the Anne Arundel men on the opposite side of the Chesapeake got any ripe fruit. I had the Baltimore market for near-by tomatoes all to myself for several weeks, and never had a crop that paid better. It is always better for the alert market gardener to take some risks. But in case I was intending to set a large lot of plants very early I would take the precaution to have more plants than I needed and keep some back in the frames. Then if those set out are lost you have the other to fall back on, and if they are not lost your later neighbors will buy them.

W. F. MASSEY.

Cow-Peas for Ensilage.

Will cow-pea vine ensilage give a weedy taste to milk and butter? J. E. MATTHEWS.

Fairfield Co., S. C.

It may seem rather odd, but with all my experience with cow-peas I have never made ensilage of them. I have seen it, however, and know dairymen who use it, but have never heard any complaint of its having any bad effect on the milk. I never attempted to make ensilage of anything but corn, except on one occasion when I filled a silo with second crop clover. Never repeated the experiment, however, as I found that corn is the best of all ensilage crops, and cow-peas are so easy to make into first-class hay, and make such ugly looking silage that I have never used them for that purpose. Fed in a properly balanced ration, I do not believe that cow-pea silage would have any bad effect. We prefer the crop for hay, however.

W. F. MASSEY.

Agricultural Lime.

T. H. Steff, Bowling Green, Va., says that he is offered agricultural lime, the siftings of the rock lime with the ashes at the lime kiln, which has been exposed to the weather, for $1 per ton f. o. b. Staunton, Va. He wishes to know if it will pay him to freight this lime and haul it over four miles for agricultural purposes.

Whether it will pay you to use this lime or not will depend upon what you can get the rock lime delivered for. The ton will contain about 25 bushels, and will be over half water. The slaked lime would then cost you fully ten cents per bushel by the time you have freighted it. It will be far less valuable than freshly water-slaked lime would be. In buying the lump lime you will avoid freighting all that water and hauling it four miles, and a car load of rock lime will make you about 1,000 bushels when water-slaked to a powder. The car load will be about 400 bushels. Now, you can figure on this yourself—getting the price per carload in bulk of the lump lime delivered at your station—and I think you will find that it will pay you better to buy the rock lime. At least, that was my experience when farming in Virginia nearer to the lime kilns than you are. I would use the rock lime at a little higher cost. W. F. MASSEY.

Remedy for Wild Onions or Garlic.

Professor Massey asks for a remedy for garlic. I assure him that when garlic is cut when in full bloom the stalk cut is killed, root and branch. I have put the mowing machine on acres of garlic thick enough to cast a swath with no stalk of garlic the next year appearing on cut over area. This operation, however, does not kill the dormant garlic which the next year may come up, but so weak as to be unable to head. My only contention is that a stalk cut when in full bloom is killed, root and branch. A Virginia Farmers' Club once turned me down because my process left seeds for immature growths, yet not a man thereof ever tested my statement, consequently, I wish the Professor, should he experiment, to remember my only claim is the killing of a stalk by cutting it when in bloom. R. S. LACY.

District of Columbia.

Paris Green and Tobacco Worms.

Last year I used Paris green to kill tobacco worms. I mixed 1 lb. Paris green with 40 lbs. flour, and put the mixture on with a sifter. I found that it killed lots of worms, but that it burnt my tobacco in some places. Was it because the mixture was too strong, or that I put on too much? There was more put on in the burnt spots than where it was not burnt.

Will Paris green kill flea bugs? Some of the farmers in my county have a Hotchkiss insect powder distributor. With it, they say, they can put on the pure Paris green so evenly that it will not burn the tobacco, and yet kill the worms. Would you advise the use of pure Paris green on tobacco? How many applications of Paris green would be advisable to apply to a crop of tobacco? Would be pleased to have any information in regard to the use of insecticides for killing tobacco worms. Please answer through the *Planter*. J. T. HICKS.

Durham Co., N. C.

The experiments made in Kentucky, Florida, and elsewhere show that Paris green may be safely used to kill both the tobacco worms and the tobacco flea beetle. For this purpose it should be mixed in the proportion of 1 lb. of Paris green to 125 gallons of water, or if used dry, 1 part of the Paris green to 20 parts of flour or dry dust. The mixture should be sprayed or dusted evenly over the plants with either a spray pump or a powder gun. If applied unevenly so that an excess of the Paris green is dropped in places this may burn the tobacco—but with reasonable care in application no such trouble will happen. The remedy will require to be repeated several times during the growth of the crop, as the different broods of

the worms and beetles are hatched out. The numbers of these broods may be very largely decreased by keeping down the growth of Jamestown or Jimson weed and other solanaceous plants in the vicinity of the tobacco fields or by poisoning these weeds with heavy dressings of Paris green. The poisoning of the blooms of the Jimson weed with cobalt solution, made by mixing one ounce of cobalt with half a pint of honey or molasses and a pint of water, and dropping a little of this into the blooms or into imitation Jimson blooms made of china, which can be bought in most large towns in the tobacco sections, has been found to be effectual in destroying the moths which lay the eggs from which the worms hatch. The bud worm, which sometimes does injury to the tobacco crop, is the same worm that injures the corn crop. It also can be killed by the Paris green spray or dusting. —Ed.

Late or Fall Cabbage.

Will you please tell me through the next *Planter*, when and how to plant cabbage in this section for the fall crop. I am 40 miles from Charleston, S. C., on the N. E. R. R.

2d. How to cultivate the crop. M. A. Floyd.

Berkeley Co., S. C.

The mistake usually made in endeavoring to grow a fall or winter crop of cabbage in the South is the sowing of the seed too early. The plants are usually eaten up by the caterpillars, worms, and beetles during the hot weather. In South Carolina the middle of August will be early enough to sow the seed. It should then be sown on a finely prepared, rich bed so as to ensure quick germination and rapid growth. Dust the plants with air slacked lime and tobacco dust as soon as they appear to keep off the flea beetles and worms. As soon as the plants are large enough to handle set out in moist clay or loam land made rich with manure and fertilizer. Cultivate frequently to conserve moisture and encourage rapid growth. A top dressing of nitrate of soda applied along side the rows, say at the rate of 100 lbs. to the acre after the plants have fairly started to grow, will help them very much. They should begin to head in November and in December will be well headed, when they should be bent down with the heads to the north, and the soil be banked over the stalk. The best variety for the fall crop is Premium Flat Dutch.—Ed.

Improving Land.

1. I have a piece of rather thin land underlaid with a good red subsoil. I intend to plant it with cow-peas, and when the first picking of ripened peas is done plow down and sow with hairy vetch, plow that under last of May, and put on 300 lbs. of good fertilizer to the acre, and plant to tobacco to be followed with rye and clover. Do you think that my plan is a correct one to improve the land?

2. Have any of the readers of the *Planter* had any experience with winter vetch? if so, with what success? My experience with hairy vetch is that stock does not relish it sufficiently to justify one raising it as a forage crop. D. Knapenberger.

Goochland Co., Va.

1. The plan suggested will, no doubt, improve your land. It would do so faster if you would apply 300 lbs. of acid phosphate to the acre before planting the peas. All the leguminous crops are large consumers of phosphoric acid and potash. If helped with these mineral fertilizers they will grow more luxuriantly, and thus gather much more nitrogen from the atmosphere, and put much more vegetable matter into the soil when turned down. Unless the land is very devoid of humus we would cut the pea crop, and make it into hay, leaving a long stubble to plow down, and only turn down the vetch crop. This crop ought also to be turned down earlier than the end of May in order that it may decompose so as to be of service to the tobacco crop.

2. We have grown the winter vetch with success, and know others who have done so. You are the first person who has complained to us that stock do not relish hairy vetch. We have a number of subscribers who make it into hay every year, and have heard no complaint from them. Like any other new crop, cattle have to learn to like it. They soon acquire this. —Ed.

A BIG CORN AREA.

Everything points to an enormous area of corn this year. The market price, the prospect of another year of profitable stock feeding, and the numerous barren wheat fields all favor a big acreage. But it must be remembered that this country can make use of a big crop and that a wide area is necessary to produce it. The uses of corn are multiplying. The amount sold from the farms is increasing every year, and so is the quantity fed to animals. Cattle, hog, sheep and horse feeding are all growing industries so far as consumption of corn is concerned, for they are taking more of it every year. Much range stock that formerly went to market almost entirely off grass is now finished with corn; the mutton industry has been, to a great extent, transformed into a lamb-fattening business. In these and other directions, such as manufacturing and exportation, the consumption of corn is surely gaining on the production. An extraordinary crop with comparatively low prices, is still among the possibilities, but the day has forever gone by when a crop of two thousand million bushels will bring the price down to the fuel point.—*Nat. Stockman.*

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

Snaps, lima and butter beans, pole beans, cucumbers, squashes, melons, and cantaloupes should be planted this month, and tomatoes, egg plants, pepper and sweet potato plants be set out.

Egg plants should be set out in the richest land, on light warm soil. Plant three feet apart each way, and fertilize with a good forkful of well-rotted barn-yard manure and a handful of high grade fertilizers to each plant. Cultivate shallow and frequently, and push them forward with a top dressing of nitrate of soda, after they have well started in growth. Look out for potato bugs. They are as destructive of egg plants as of Irish potatoes. Spray with Paris green before the fruit forms; afterwards the bugs must be handpicked. The Improved New York Purple is the best variety to grow.

Snaps, lima beans, butter beans, and pole beans do not require very rich land, but it should be of average fertility and well worked. A light dressing of farm-yard manure, or a fertilizer having, say 2 per cent. of ammonia, 7 per cent. of phosphoric acid, and 6 per cent. of potash, applied at the rate of 300 or 400 pounds to the acre, will usually be found sufficient to secure a good yield. The Dwarf Limas will be found to produce good yields of very nice beans, and they avoid the necessity for the use of poles. In growing the tall limas, butter beans, and pole beans, take care to plant the poles well in the ground when setting them, or the crop will be likely to blow down when it most needs to stand upright.

Cucumbers, melons, squashes and cantaloupes should be set six feet apart each way in well-worked, light warm land. Give each hill a good shovelful or two of well-rotted farm-yard manure, and mix a good handful of high-grade fertilizer having, say, 6 per cent. of ammonia, 4 per cent. of phosphoric acid, and 7 per cent. of potash in each hill before setting the seeds. Plant three or four seeds to a hill, and thin out to a single plant after they have made two or three leaves. The young plants, especially melons and cantaloupes, are frequently much troubled with bugs and the melon louse. Dusting the young plants when wet with dew with bone meal or plaster, has often been found to be of service in stopping the damage by the bugs. Cultivate the crops until the running of the vines prevents working.

Plant sweet corn for successional crops every two weeks until the end of July. Any surplus will be enjoyed by the live stock.

Celery seed may be sown towards the end of the month, and in June, on a moist shady bed. Make the soil fine, and just cover the seed, which should not be sown too thickly. If the bed is shaded with mats or boards until the seed germinates, it will be an advantage. After the plants are up, keep free from weeds, and encourage a stocky, hardy growth. The plants will not be wanted to set out before August.

All the early planted crops should be kept vigorously growing by frequent cultivation. As the crops become ready for gathering, gather and market in the most attractive form. There is much, very much, in the way in which a crop is put on the market. Buyers are tempted to give higher prices by attractive packing, careful sorting, and uniform quality. Use nothing but full standard-size packages, and give good measure and full count. Get a reputation for a good article, and the name will then sell it. Have shipping baskets and crates ready at hand before the crop is ready, and require your commission merchant to keep you posted every day with prices and requirements of the markets you ship to. Ascertain the latest time at which you can ship to reach your market, and don't have the packages waiting half a day in the hot sun before they are wanted. The facilities for shipping North and West are now much improved, and it will pay in the end to build up distant markets. Though the profit may not be large on these long distance shipments, they relieve the home markets and keep up prices there, so that the average obtained will be higher.

When setting out your tomato plants, plant a hill of corn every few yards. The boll worms, which are so destructive of tomato fruits, will, when they have the choice, select corn before tomatoes. The corn should be fed to stock before the worms mature. In this way the crop of worms next year will be reduced. Pick off all wormy tomatoes as soon as seen, and give them to the hogs.

Tie up the grape vines as they grow, and prevent the growth of surplus canes by disbudding. Spray as recommended in the Spray Calendar published in the March issue.

Mention the *Planter* to your friends.

MARKETS FOR TRUCK AND FRUIT CROPS.

We learn that the Chesapeake and Ohio railroad is endeavoring to interest Western commission houses in Virginia truck and fruit crops, and has induced a number of these men to visit the State and ascertain whether they can secure consignments. If the prospect of a business is at all encouraging, the C. and O. railroad will run special vegetable and fruit trains from Norfolk to Cincinnati, where the consignments will be taken over by the "Big Four," and carried as far West as Detroit. We hope to see our truckers give the railroad company their support in this matter, as it will be a means of preventing over-stocking of the Northern markets and tend to establish better markets there and at local points. We want all the outlets we can get for our enormous Southern truck crops and later for our fruit crops. Whilst the Northern markets are capable of taking great quantities of produce, they yet cannot handle profitably all the South can send, when it is sent almost wholly in a short period of time. The West needs our crops, and will pay well for them if only they can be put there in good condition. This the railroad company promises to do if only properly supported.

FRUIT PROSPECTS IN ALBEMARLE.

Personal observation enables us to report a bright outlook for fruit in the Piedmont section of Virginia. All through Albemarle the fruit growers are enthusiastic, and indications point to the largest crop of apples and plums, especially, raised for some years. Mr. Walter Whately, of Yancey's Mills, has the largest plum orchard in his section, and, at this writing, it is blooming most profusely. It is such a grand sight that Mr. W. has had it photographed. We recommend to our Albemarle friends that they keep their spray pumps working, and we feel sure that they will top the market with their product. B. M. S.

SUGAR BEETS IN THE SOUTH.

Very many of the crops which are planted in the spring in the North are found to do better when planted in November in the South. This is the case with sugar beets. Planted in rows two feet apart on sandy soil, and thinned to six inches in the row, and covered by a sweep in December the beet is ready to take off in perfect condition in May and June. B.

Mention the *Planter* when corresponding with advertisers.

POLLINATION IN ORCHARDS.

1. Scarcely one fruit blossom in ten sets fruit, even in the most favorable seasons and with the most productive varieties.

2. Trees making a very vigorous growth may drop their blossoms.

3. Brown rot, apple or pear scab, and pear blight may kill the blossoms.

4. Frost injury to blossoms is of all degrees. Even flowers which appear to be uninjured may be so weakened that they cannot set fruit.

5. Rain during the blooming season prevents the setting of fruit chiefly by destroying the vitality of the pollen, injuring the stigma, or by preventing fertilization because of the low temperature. The washing of pollen from the anthers seldom causes serious loss.

6. Much of the unsatisfactory fruiting of orchards all over the country is due to self-sterility. A tree is self sterile if it cannot set fruit unless planted near other varieties.

7. The main cause of self-sterility is the inability of the pollen of a variety to fertilize the pistils of that variety.

8. Poor stamens and pistils or the premature ripening of either are but minor causes of self-sterility.

9 An indication of self-sterility is the continued dropping of young fruit from isolated trees or solid blocks of one variety.

10. Self sterility is not a constant character with any variety. The same variety may be self-sterile in one place and nearly self-fertile in another.

11. Poorly nourished trees are more likely to be sterile with their own pollen than well fed trees are.

12. The loss of fruit from self sterility usually may be prevented by planting other varieties among the self-sterile trees.

13. The European and Oriental pears can fertilize each other, and many varieties of the domestica, Japanese, and native plums are likewise inter-fertile, provided they bloom together.

14. The pollen of some varieties will give larger fruit than that of others when it falls on or is applied to the pistils of either self-sterile or self-fertile varieties.

15. Among our common orchard fruits cross-pollination seldom has an immediate influence on the size of the fruit itself.

16. Cross polination probably gives better results than self pollination with nearly all varieties.

17. It is advisable and practicable to plant all varieties of orchard fruits, be they self-sterile or self-fertile, with reference to cross-pollination.

18. Insects are probably more important than wind for carrying pollen from tree to tree.

19. *Final suggestions.*—a. When sitting out new orchards do not plant a solid block of each variety, but mix them intelligently.

b. If established orchards are unfruitful because of self-sterility it may be profitable to put a few grafts of another variety in each tree.

c. Keep fruit trees well nourished, but do not stimulate them to an over-vigorous growth.

S. W. FLETCHER.

Cornell Expt. Station, N. Y.

WATERMELONS.

Editor Southern Planter:

We have, in watermelons, a crop which is assuming very great importance at the South, and every year sees hundred upon hundreds of acres devoted to their production, while in June and July they go North by the train-loads, often bringing fancy prices.

To be successful with watermelons the grower must first select the proper location. The land should be well drained, of a light sandy texture, and naturally fertile. Freshly cleared land is a good place, or an old broom-straw field which has lain out a number of years. I have also had good success on a pea vine stubble, following in a rotation with cotton, corn with peas sown between, followed by oats, with peas sown again after the oats, to be cut for hay, and furnish the pea vine stubble for the melons; then cotton again, and so on. In a four-year rotation like this, melons are less likely to suffer from the disease known as the Southern blight. But even this far apart, they are sometimes affected. Indeed, this matter is assuming very serious proportions, and a remedy for the wilt, or blight, is badly needed.

It seems that the Alabama Experiment Station is meeting with some success in checking the disease by an application of lime to the infected land, during the winter previous to planting. They are, I believe, continuing these experiments, the final result of which will be looked forward to with interest. It can, at any rate, do no harm to try lime at the rate of—say 40 bushels per acre; for when one has to find a fresh piece of land every year on which to plant his melons the land available for this purpose soon becomes exhausted.

One of my neighbors, who is quite an extensive watermelon grower, after having used up his own land in this manner, has rented from year to year all the land in his vicinity that he could lay hands on, and what he will do now to find land free from the fungus I am unable to say. Anyway, the best we can do for the present is a wide rotation and the use of lime.

After selecting the location, the land should be well broken with a two-horse plow and worked down fine. Then lay off the rows ten feet apart with double mouldboard plow, going twice in the row, and running as deep as possible.

Prof. W. F. Massey, of the North Carolina Experiment Station, advocates the practice of checking off the rows ten feet apart each way, throwing out a wide hole at the crossings, in which half a bushel of compost made from well rotted manure and leaf mould from the woods is placed. This is to be spread evenly, and a handful of high-grade guano worked in on the surface, after which the hill is made up, and the seed planted. I mean to try this method this year. I have, however, had remarkably good success by spreading manure the whole length of the row in the deep furrows spoken of above, stirring in a little soil, and then bedding by throwing four furrows together over the manure. I then check across this bed every ten feet and plant the seed at the crossings.

A little dab of manure in the hill is not enough for melons, they need lots of fertilizer, and they need it spread out for a considerable distance from the centre of the hill; for as long as the roots can reach out and find fresh fields to conquer, the vines will continue to grow. Every one, however, is not able to obtain manure or compost for the melons; especially is this true with the large grower, and commercial fertilizer, if properly applied, can be made to answer very nicely. The main advantage with compost when put deep in the ground is, that it holds more moisture for the crop during a drouth.

I well remember one of the best watermelon crops I ever raised was fertilized with commercial fertilizer. This was applied in the drill at the rate of 300 lbs. per acre, stirred in, and two furrows put on it. I then let it stand about two weeks, after which I put 300 lbs. more fertilizer on each side of this list, threw two more furrows to the bed, and planted. The plants came up with a fine dark green color, and grew off well from the start, doing really better than an adjoining field on which manure was used.

There is certainly a great deal of labor saved by using commercial fertilizer for melons, and if the soil is well and deeply prepared and cultivated rapidly after the plants start, almost, if not quite, as good results may be obtained.

A fertilizer for melons should contain about ammonia 5 per cent,, phosphoric acid 6 per cent., and potash 7 per cent., used at the rate of not less than 500 lbs. per acre. Instead of that the following may be used: Take nitrate of soda 200 lbs., cotton-seed meal 700 lbs., and acid phosphate 840 lbs., and muriate of potash, 260 lbs. to make a ton, or tankage (9 per cent.), 625 lbs. bone meal, 1,100 lbs., and muriate of potash 275 lbs. will also make a fertilizer with the proper analysis.

In regard to varieties, the old Georgia Rattlesnake still holds its own with us, whilst a new variety known as the Kleckley Sweet is proving a great favorite with many; the Jones is also popular, and I saw carloads of Kolb Gems going North last summer, but these are too coarse for our use, although they make a good shipping melon.

Battle Hill, Ga. F. J. MERRIAM.

Mention the *Planter* to your friends.

Live Stock and Dairy.

SHORTHORNS.

In our last issue we noted the fact that Shorthorns were again growing in popularity. As a further illustration of this fact, we note that at a sale at Minneapolis on the 26th of March, 35 cows sold for $12,900, an average of $368.60 each, whilst 45 head, bulls and cows, sold for $15,425, an average of $342.80 each. At the sale of Mr. F. A. Edward's herd at Webster City, Ia., on April 3d, 34 cows sold for $16,635, an average of $471.60 each, and 70 head, bulls and cows, sold for $21,050, an average of $421 each. At this sale one cow, Golden Lassie, sold for $2,000, and several others sold for over $1,000 each. This sale marked the highest prices for Shorthorns for fifteen or twenty years past.

ABERDEEN-ANGUS SALE.

The high-water mark in Aberdeen-Angus sales was reached March 22d, when the Woodland herd of Wallace Estill, of Estill, Mo., was sold at Chicago. Fifty-eight cows sold for $33,845, an average of $583.55 each. Seventy two head, bulls and cows, sold for $41,710, an average of $579.30 each. At this sale one cow, Lucia, Estill, sold for $2,800, another one for $2,000, and several others for over $1,000 each. One bull sold for $2,100, and another for $1,150. The "Doddies" are still to the front, and they deserve the place.

SHEEP-RAISING IN THE SOUTH.

Editor Southern Planter:

It is said that John Randolph, of Roanoke, who was proud of his descent from the Indian Princess Pocahontas, declared he would go a mile out of his way any time to kick a sheep. As sheep are the most harmless and innocent of all the domestic animals, Mr. Randolph's dislike must have been engendered by economical or political considerations. Perhaps sheep had not paid him so well as raising other stock and tobacco, and he hated them, not because they were bad morally, but because they were a bad investment. It is more probable, however, that he hated them because there was a protective tariff on wool.

The native habitat of sheep is a hilly country. Our domesticated sheep were no doubt descended from the wild sheep to be found on the Rocky mountains of North America, on the mountains of Northern Africa, and in the mountainous regions of Asia. They were evidently designed for the hills, and do better there, but when they become acclimated to the lowlands, they can be raised without difficulty. In England, they are profitably kept on the lowlands, in the richest and most productive valleys in the kingdom, for which lands the farmers pay an annual rent of six to eight dollars per acre.

There is no doubt whatever that sheep can be profitably kept in the South, especially in the extensive elevated regions, and would there be more profitable than any other kind of stock. Their thick covering of wool would seem to indicate that they were intended to inhabit a northern climate, but they do well in Italy, Spain, Northern Africa, and even in tropical countries.

According to the most reliable statistics we have, the number of sheep kept in the United States in the year 1880 was 40,765,900. Average value per head, $2.21. In 1899, it was 39,114,453. Average value per head, $2.75.

It will be noticed with surprise that fewer sheep were kept in 1899 than in 1880, nineteen years previous, although the value per head was 54 cents greater. In the year 1893, the number went up to over 47 millions, and in 1897 fell to 36,818,643—a falling off of more than ten million sheep in four years. As these great fluctuations did not take place with any other kinds of stock, it has been justly ascribed to changes in the tariff on wool.

The number of sheep kept in Virginia in 1899 was	369,527
The number in West Virginia in 1899 was	440,014
Total in the two Virginias	809,541

The number of sheep kept in Ohio in 1899 was 2,730,471.

It thus appears that the State of Ohio—just across the river from the Virginias (with twenty six thousand square miles less territory), keeps three times as many sheep as both of them added, and three hundred thousand besides.

In 1899, Pennsylvania had nearly as many sheep as both Virginias, with twenty-two thousand square miles less area.

The same year, New York (with nineteen thousand square miles less area) had over thirty thousand more sheep than both Virginias put together.

The shrewd flockmasters of Ohio make money raising sheep else they would not be apt to raise them, and there is no good reason why the Virginians should not keep as many as are kept in Ohio.

Mr. J. R. Dodge, who, for more than twenty years, was the statistician of the U. S. Agricultural Department, says: "The mountain regions of Virginia are

unexcelled as sheep walks. The mildness of the climate and excellence of the mountain pastures, are conditions favoring the production of the best qualities of wool."

Dr. Galen Wilson and Prof. Massey, I think, have advised Southern farmers to keep more sheep.

In the South, they have an advantage over the farmers in the North in having shorter winters, less snow, and consequently less requirement for winter fodder. In fact, sheep can be kept in the South without any winter fodder at all. South of the Ohio river they will live on grass alone, but should not be forced to do it.

Anthony Kilgore, of Kentucky, says: "For thirteen years, my sheep have never been fed, either winter or summer, but live bountifully the year round on blue-grass alone."

In Texas, where 2,543,917 sheep were kept in 1899, no winter fodder is ever required.

Sheep were introduced into the Colony of Virginia in 1609, and in forty years had increased to 3,000. A few years later, they were brought into New York and New England, but the increase in numbers was never so rapid as would have been expected. The great enemy to sheep raising in America has always been *dogs.* The editor of the *Southern Cultivator* once said: "Civilization has to be further advanced than it would be proper to name before a community will think as much of sheep as it does of dogs."

During the colonial period, it was the policy of Great Britain to discourage the raising of wool and the manufacture of cloths. The changes in the tariff on wool, and the threatened changes, have deterred some farmers from engaging in sheep-raising, and caused others to abandon it.

Tariff or no tariff on wool, I believe that sheep well cared for will give as good returns anywhere in this country as any other stock, and, on thin soils and mountainous regions, a great deal better. For the amount of food consumed, the money invested, and the labor expended upon them, they will declare as good a dividend as hogs, horses, steers or cows. They can be more cheaply kept than any other stock, because they are not so particular about their food, and will devour more of the coarse grasses and weeds than any other animals, unless it be goats. In fact, they are hardly particular enough when hungry, and will sometimes eat poisonous plants. There are no other animals that can be kept on the farm which will assist in cleaning it up and freeing it from weeds, brush and thistles, so well as sheep, or that will do more to keep up the fertility of the farm.

Mr. W. L. Ames, of Wisconsin, says his sheep give him a remunerative crop of mutton and wool, besides helping to recuperate his grain-impoverished fields, and "for every dollar we have put into our sheep they have returned us *two.*"

George McKerron, of Wisconsin, says: "There is no animal on the farm that will do more in keeping up the fertility of the farm than sheep."

Mr. Mechi, a celebrated English farmer and experimenter, said that "beef must sell 20 per cent. higher than mutton to make them of equal profit."

John Johnson, a successful farmer of Geneva, N. Y., said what he had made in the last forty years had been in large proportion from sheep.

Sheep have been called the animals with "the golden hoof," because they leave the fields which they tread upon better than they find them. This desirable quality should commend them to the South, many parts of which have been impoverished by constantly raising cotton and tobacco.

J. W. INGHAM.

HEREFORDS AS MONEY-MAKERS.

Editor Southern Planter:

A great future looms up for the farmers of Virginia if they will only give more attention to cattle breeding. Point to a single industry that has weathered the storm of a world-wide depression with as much buoyancy. Speculation may be "the life of trade," but it is certain that speculation has been financial ruin to more than a large portion of its followers. It, therefore, behooves the Virginia farmers to look carefully to a plan for conducting their farms that does away with the element of speculation or chance. How shall he proceed? To me, the question seems easy to answer. The demand for baby beef points the way; the increasing value of heifer-beef favors it. In brief, the road lies through breeding. There are too many scrub breeders now, so that if one enters into competition with them there is little hope; but there is room at the top, and always will be, and at the present prices of beef there is a safe margin of profit if one will carry on his operations intelligently. A purebred Hereford bull bred to the common cows of Virginia will enhance the value of the calves from $5 to $12 per head above those of calves of common stock. Herefords or their grades intelligently reared are ready for the market any time after they are six weeks old, and they will top the market at any age. So the age to put them off is to be determined largely by the size of their owner's farm. If a small farm, an ambitious owner will want to keep as large a stock as possible, and to enable him to have adequate plant, he will wish to carry his full capacity in cows. His plan will be to get his calves ripe at about twelve months. The owner of a large farm desirous of getting as much out of it as possible with the minimum of work and

trouble, will hold his produce a year or so longer, getting the most of their gain on grass. Between these extremes are plans and methods suitable to every requirement. With heifers growing in favor with slaughterers and exporters, and promising soon to meet with their just dues—*i. e.*, equal price per pound with steers—it will be seen that a farm with twenty cows can furnish a car load of prime baby-beef annually that will net their producer $1,200 to $1,500, and with the corresponding hogs following the cattle will make an income attainable in no other way on the farm. There have been no dream days in Hereford ways. The history of the Herefords for over three hundred years is one of continued practical development in utility, with no precious time wasted in fads, manias, whims or fashions. When fashion and fad held their sway over the sober thought of American cattle breeders, the Hereford breed of cattle, to which whims and fancies are unknown, was kept in the background, for their only claims to public recognition lay in their ability, economy of production and value of the product of prime beef; and when hard times laid prejudice and predilection aside and dollars and cents (actually earned by economical production of prime beef) became the sole criterion, the Herefords proved the money makers in this country, just as they have proved for centuries the rent-payers of the tenant farmers in England. In the present state of American agriculture, a farmer can afford to pay more money for a pure bred Hereford bull than for any animal or product of live stock husbandry, for there is no other branch of agriculture that to-day offers anything like so great advantages as the making of prime young beef. From my observation, there is no other path leading to profitable farming open to agriculturists. I hope what I have said may be worth heeding.

Fluvanna Co., Va. ANDREW STONE.

ANIMAL PARASITES.

Editor Southern Planter:

The life history of parasites in general is quite simple, but when the life history of those which act as parasites during but a portion of their life is considered, we meet with a variety of habits. Some are parasitic only in the adult stage, and even in this stage may spend all or only a portion of the time on the host. Others are parasitic only in the larval stage, during which time it is a constant parasite, leaving its host only to enter the pupa stage. For example, the mosquito, horse flies and gnats are parasitic only in the adult form, the gnat and mosquito passing the larval and pupæ stages in moist places or in water. On the other hand, the larvæ of the screw worm fly and bot fly are parasitic, while the adult is not. The time required for the different species of parasites to pass through the different stages of their life varies with each family or species. Some require months while others require but a few days. In a very large number of animal parasites their entire life is passed upon or within the host. Of the internal parasites the larvæ are frequently migratory and inhabit organs or tissues very remote from those in which the adult is found, and in different species of animals. For instance, the larvæ of a common tape worm of man are found in the flesh of cattle, and another in the flesh of swine, constituting the so-called "pork measles."

It has been argued by some that insects which now act as parasites have been forced to do so by chance, or certain circumstances, and although now parasitical, are the descendants of non-parasitic insects. There are numerous facts upon which deductions are founded; especially from a biological standpoint, and by which the theory of evolution must be accepted to a certain degree, since it is not reasonable to suppose that a given form of parasite existed before the existence of its host. In other words, it must be considered that the force of habit has, in many instances, transformed a non-parasitic insect into a parasitic one, in which certain organs have become more highly developed while others have degenerated.

The natural tendency for an insect once started in a parasitic life is to become more and more parasitic, hence the transformation of organs. In some the wings are lost, or if present, are very rudimentary, while in others the mouth parts are greatly developed for the purpose of biting or piercing the skin. In others the clasping organs are exceedingly well developed for the purpose of holding. The eyes and antennæ are also often greatly modified.

Each group of animals has its particular forms of parasites and each parasite has its particular host. In fact, there is a form of parasite for every form of animal life, from the highest to the lowest, and each form has its particular group of animals for its host. With reference to the external parasites, a parasite of one species of animal will not survive on a different species. With reference to the internal ones, however, there are many which are more or less cosmopolitan—since several of them are content to gain an existence in the tissues, or organs, of varied hosts, at least during some portion of their life cycle.

The rapidity with which parasites multiply is astounding, and were it not for the fact that there are numerous causes of destruction surrounding them animal life would be next to an impossibility. Leuwenhoeck calculated that the female louse may become the grandmother of 10,000 lice in eight week's time. Other authors assert that the second generation of a single individual may furnish 2,500 progeny, and the third generation 125,000. Gerlach asserts that a couple of the itch mite of man yield six generations in three months, the last generation comprising 1,500,000 individuals. It is estimated that a tape worm may throw off in one year 150 millions of eggs. The state of surroundings in which an animal is kept may, however, hasten or retard the multiplication of parasites. Well kept and regularly groomed animals are less liable to parasitic attacks than poorly kept ones. Certain kinds of parasites are also more numerous during certain seasons of the year. For example, the flies, mosquitoes, ticks, etc., are more numerous during the warm summer months, while lice are in greater evidence in the winter time when cattle and other animals are crowded together in stables and sheds.

Butcher's dogs are more frequently infested with tape worms than those which have less raw meat in their diet. Certain classes of parasites are also more numerous in some countries than others. The trichina is especially more common in Germany, notwithstanding the claims made by the Germans that American pork heads the list in this direction. The influence of parasites on the health of their host has been a subject for more or less dispute, in so much as some have advanced the theory that the host was not only not injured but benefitted by the presence of the parasite. Others have claimed, and with good reasons, that parasites are not only unnecessary for the health of the host but actually injure it. It may, however, be stated that certain forms of parasites, when in comparatively small numbers, do no special injury, and are only discovered by accident, or by a most careful examination, or on post-mortem In one or two instances it has been stated that a certain parasite (liver fluke of sheep) for a time improves the condition of the host, since the primary stimulation of the liver by these parasites is said to cause the animal to take on flesh with greater rapidity. On account of this phenomenon it has been stated that in an early day in European countries sheep to be fattened quickly were purposely infested with the liver fluke. Such a practice is extremely dangerous, owing to the great danger of infecting the pastures and other members of the flock.

As previously stated, it has been argued that parasites do not injure the host, but such opinions were offered in an early day when but little was known of the various forms and degrees of parasitism. It is now a well demonstrated fact that parasites are injurious in at least three ways.

First, as direct agents of loss from the animal economy. Second, as carriers of the micro-organisms of contagious and infectious diseases. Third, as carriers of other forms of parasites. In the first instance must be considered the effect produced by the extraction of nutrition from the animal by the parasite—the loss of vitality by the production of sores and the loss of energy due to the irritation and worry caused by the parasites. At first thought it would not seem that the small amount of the animal fluids consumed by these little insects would have any appreciable effect on the host. When we consider, however, the amount of blood consumed by a single mosquito, fly or louse, and then multiply this by thousands, it will be seen that the amount of nourishment extracted by them is enormous. The detrimental effects on the host is all the more apparent when the slowness of the preparation of these fluids for the building up of the tissues is taken into consideration, as well as the need of the fluids consumed by the parasite for the growth and strength of the animal, the laying on of fat, etc. It will therefore be seen, that the drain is immense and that the presence of parasites is no insignificant matter. The loss by the degeneration of tissues manifested in the formation of sores, ulcers, scab, etc., making a heavy drain on the animal economy, is also of great importance, and is a source of heavy drain on the animal in addition to the loss of nutrition. The irritation caused by parasites, especially on nervous animals, or on sensitive parts of the animal, is often of great injury, as is illustrated in the attacks of the bot flies of the horse, sheep, and ox. The irritating effect of the common horse and horn flies upon horses and cattle in pastures in the summer time is often an important factor in the prevention of the laying on of flesh.

It has been stated that as the biting lice live on the cast off scales of the skin, hair or feathers of fowls, they are an advantage rather than a disadvantage. The irritation these parasites cause by crawling about on the skin is frequently considerable as indicated by the host scratching and rubbing itself on the fence, posts, etc., and in the case of fowls dusting themselves in ashes or dust. While it is stated that the biting louse does not feed upon the live skin of the host, the writer can testify to the biting propensities of the biting cattle louse in at least one instance when several of them accidentally got on the bare arm, and caused a great amount of irritation by biting until removed.

As carriers of contagious and infectious diseases, parasites play an important part. Although comparatively little is known on this point, enough information is at hand to justify the statement that in all probability a large number of contagious diseases are contracted and disseminated through the medium of parasites. It is probable that the micro-organism of malaria is carried by the mosquito in many instances, and that various forms of pathogenic bacteria are scattered far and wide by the fly. The micro-organism of Texas cattle fever is known beyond a doubt to be carried by the cattle tick.

As carriers of other parasites the flea and louse of the dog are known to carry the larval form of one or more of the species of the tape worm of the dog. The dog in licking or biting itself to destroy the parasites, or to relieve himself of the irritation, swallows some of them, and the result is the development of an adult tape worm in the digestive tract.

The losses due to parasites cannot be estimated with any degree of accuracy. As a rule no notice is taken of their presence until the animal begins to lose flesh, yet during all this while a greater quantity of blood has been necessary to supply the parasite with nourishment, and to supply the animal with a sufficient quantity to compensate the tissues for that which has been extracted by the parasite.

Considering all classes of parasites the deaths therefrom are numerous; especially in sheep, in reference to which it may be stated that three-fourths of the deaths are due to some form of parasitism. In some parts of the South, especially in the lower Mississippi Valley, the losses from the buffalo gnat have been enormous. Osborn states that in a single county in Tennessee the loss from this cause in 1874 was $500,000.

It is a popular notion that only poor animals are infested with parasites, and that the fat animal is exempt. Such a notion has probably gained credence because parasites are not suspected, or looked for, until the animal is noticed to be in an unthrifty condition. It is a fact, however, that the fattest animal may be infested with lice, when a poor animal in the same herd may be free from them. It should be remembered that lice seldom attract attention until they become so numerous that the animal begins to lose flesh. Another idea is that white cattle are most frequently infested with lice. Such is probably not the case, but owing to the fact that lice are most easily seen among the hair of a white animal than on those of other colors attention may more frequently be at-

tracted to the white animal. It is, however, asserted by a number of observant stock men that animals of a certain color are more frequently attacked by lice. This may be true to a certain extent, and if true the reason cannot at this time be explained, except that the skin of certain individuals of certain color may be thinner and more easily penetrated by the biting or sucking mouth parts of the lice. It is hardly reasonable to suppose, however, that if a louse casts its lot on the skin of one individual he will perish, or leave his host in search of a more tender one. It is a well-known fact, however, that certain individuals among the human family are almost entirely exempt from attacks of harvest mites, or giggers, while others are greatly annoyed by them, which, in all probability, is due to some peculiar condition of the skin or its secretions.

The fact that certain species of lice, and other parasites, will only infest certain species of animals is due no doubt to some difference in the skin of the animal, its secretions, body fluids, character of food, and habits. It is, however, a popular notion that chicken lice will infest the horse when the chicken roosts are in close proximity to the stable, but the writer is not in possession of sufficient facts bearing on this point to affirm or negative this theory.

It must be remembered that certain species of lice have, through a long course of evolution, adapted themselves to certain species of animals, and that they adhere closely to the habits for which such a long course of evolution has adapted them.

From a practical standpoint it is necessary for the stock owner to know to what extent a certain parasite is capable of injuring his stock, the time and mode of its attack, the species of animal it may affect, and the best method to be adopted for its eradication. In the majority of insects acting as parasites a general treatment may be prescribed, but in certain others a knowledge of the complete life history is necessary in order that they may be thoroughly eradicated.

In subsequent articles it is proposed to discuss in detail the diseases caused by the parasites as they are taken up in their order, together with preventive and remedial measures to be adopted.

E. P. NILES, *Veterinarian.*

Agr. Experiment Station, Blacksburg, Va.

ENEMIES OF THE SHEEP.

Editor Southern Planter:

At this time, when sheep husbandry is becoming popular and profitable again, our flocks are finding new homes. When Virginia is destined to be prominent by reason of its genial climate, soil adapted to grasses of the most desirable qualities for mutton and wool growing, it seems eminently fitting to look into the subject of sheep diseases and their remedies.

The time was, and that in the memory of the men of this generation, when we had hardly any of the present diseases of sheep. At that time, the fear of the flockman was the worthless dog and his more worthless owner. This was true in every section both inside and outside of the Commonwealth of Virginia.

Happily, this trouble, whilst still present, is not so common as formerly.

The diseases now prevalent came largely by importations of sheep, and overwhelmed the sheep industry. Against these, for a time we were unable to contend, because we did not know what was the matter, nor what would cure it. Pre-eminently among these troubles was what everybody knows now as scab—sheep scab or itch. This was during the War, when the sheep industry was wonderfully expanded. It was a new experience, and as we were ignorant of cause and cure, many went out of business in disgust. Not only were all flocks suspected, but sheep-sheds, yards and fixtures, and even the pastures were made unhealthy.

I well remember the lack of information on sheep diseases. There were no authorities to call on, and we "went it blind," as was then a Western way of putting it. Then there was not known such a store of information as is now sent out free to all who ask it from *William Cooper and Nephew, of Galveston, Texas.* The book should be in the home of every new or old sheep-raiser in Virginia or elsewhere.

R. M. BELL.

STRONG SHEEP AND HOG MARKETS.

Advance is still the order of the day in sheep and swine. Cattle are resting a little; values of every commodity fluctuate especially during an advance, and cattle prices have receded somewhat from the extremely high stage of the early winter, but the quality of the cattle now coming is not nearly equal to that possessed by the toppers of the winter time. Such cattle would command better prices than are now being bid. But sheep have come into their own in gratifying fashion. We are obliged to hark back to the Columbian year before the panic to find such prices on record as are now being paid; sheep are at the highest point in seven years. Details of the advance have been supplied in our market reports and our special article on the sales of the Colorado lambs. The market for last week closed with fed Western sheep bringing $6.25, native lambs as high as $7.25 and Colorado lambs up to $7.35. This is $1.25 higher than last year for Westerns, $1.35 higher for native lambs, and $1.45 higher for Colorado lambs. Who would now go out of his way to kick a sheep? All things come to those who wait—and plan according to the known laws of trade, of which a fundamental one is that every down has its up. The marked gain in the price of wool and the material economy to be effected by the use of clipping machines add still further to the flockmaster's proudness of purse and contentment of mind.

And hogs are hogs. On Friday prices reached $5.52½, which is the record for six years. Pork has been scoring a very large gain in price, advancing last week $1.67½ per barrel, and reaching $12.97½. This is $3.82½ higher than last year. The packers seem to be

behind it on 'Change. With this advance in provisions the packers have been eager buyers of hogs, although the shipping demand has been somewhat curtailed by the high prices. The big run of hogs which some people predicted at this time has failed to materialize, and meanwhile the appetite for pork is growing all over the country: The consumptive demand is very strong and bids fair to expand along with the development of the great volume of business now swelling in this country.

Breeders of pedigreed pigs are reporting an unusual demand from their customers. Judging from evidence that reaches this office, gilts or sows bred to farrow this spring are very difficult to obtain. Some of the extensive breeders declare that they have sold themselves short on bred sows and positively decline to part with any more. Under such circumstances, the demand exceeding the supply, it is difficult to see why prices should not advance.—*Breeders' Gazette.*

RED POLLS AT SMITHFIELD, ENGLAND.

In an article by Mr. Euren giving the weight for age and gains of the different breeds at the Smithfield Club Show, the Red Polls hold their own well in comparison with the strictly beef breeds. The Queen's prize Hereford steer, champion of the show, and also champion at Norwich and Birmingham, showed a gain in the year of 553 lbs.—a percentage of 39.16 of his initial weight. Of two Red Polled steers carried over, one showed a gain of 452 lbs.—percentage, 35.98; the other 442 lbs. gain and 38.17 per cent. The heaviest young Hereford steer weighed 1,653 lbs. at 686 days old; the heaviest young Red Poll weighed 1,660 lbs. at 685 days old. The heaviest Hereford heifer weighed 1,839 lbs. at 1,050 days old; the Duke of York's Red Polled heifer weighed 1,436 lbs. at 863 days old.

I have selected the Herefords for comparison because that breed received the champion honors, and on the whole makes the best showing. There is no great difference, however, as between the different breeds. In feeding capacity and weight for age, under favorable conditions, it is more a matter of selection and individual excellence than of breed. The figures show, however, that Red Polls in this respect need ask no favors. They can hold their own with any.—*Exchange.*

THE FARMER'S COW.

Editor Southern Planter:

Of the two chief dairy breeds competing for the patronage of milk producers in America—the Holstein-Friesian and Channel Islands cattle—that breed must eventually prevail which proves itself best adapted to the wants of the great plain people, which proves itself a business breed for business men.

Wealthy men, who make their money in the city and are in no way dependent upon their country property for an income, can afford to take up a breed of cattle as a fad, just as they can afford to stock their parks with deer; but the common farmer and dairyman, who is not in the business for his health, but for his livelihood, in order to succeed, must have that breed which will return him the largest net profit for his labor, investment and feed consumed. Hence, the wealthy *dilettante* farmer takes to the fawn-like Jerseys, while the business farmer adopts the stately Holstein-Friesians.

In its efforts to aid the thinking farmer in the selection of breeding stock for the improvement of his herd, the Holstein-Friesian Association is ever at the front. Its official tests are not made by the foremen of wealthy owners, or by the owners themselves, but by the officers of the various State Experiment Stations, and so vouched for. Nor is the cow credited with an indefinite amount of water, salt and caseine as butter; but every milking is tested for butter fat with the Babcock test, and the cow credited for butter on the basis of the amount of butter fat she has produced. The buyer does not have to take the seller's word, the State vouches for everything. In the light of hundreds of these official tests, the results attained having completely buried the only really official tests of Jerseys known—those of the World's Fair—the Holstein-Friesian has proved itself the greatest of butter breeds, while its supremacy in milk production has never been denied.

It was formerly asserted by those interested in rival breeds that, while the Holstein-Friesians might give very large quantities of milk, yet the milk was thin; but this criticism was largely the result of ignorance, for average Holstein-Friesian milk will compare favorably as to butter fat with that of the average cattle of the country, while as to quantity there can be no comparison at all.

With the lowering of prices for milk and its products, the vealing of surplus calves become of more importance, and there is no veal that will compare with Holstein Friesian or its grades. The calves are large to begin with, grow rapidly, and fatten readily, so that at four to five week's old they dress from 100 to 120 lbs. As to beef, no sane man would claim that dairy cattle make the best; but if a Holstein Friesian cow or heifer meet with misfortune, and lose the use of a part of her udder, she does not have to be buried or to be almost given away as a "canner," for the the local butcher is always glad to get her at a fair price, and she makes excellent beef.

Strong of constitution, and not dainty as to feed, for milk, butter, cheese, veal and dairy beef, the Holstein-Friesian cow stands without a rival in the estimation of business farmers and dairymen.

MALCOLM H. GARDNER,
Secretary Barien (Wis.) Creamery Co.

The Poultry Yard.

PLYMOUTH ROCK BREEDING.

In our last issue appeared an article on the mating of Plymouth Rocks for the breeding of cockerels and pullets. We have now the pleasure of producing an



illustration of a pen of Barred Plymouth Rocks as mated for breeding cockerels at the Ivanhoe Poultry Yards, Richmond, Va.

HOW TO SUCCEED.

Editor Southern Planter:

In every business there are successes and failures—some who make money and those who lose it. Approach the successful business man and seek to learn the secret of his success, and in the great majority of cases you will receive for an answer "*Industry* and *Enterprise*" coupled with the determination to succeed. By industry he means strict attention to all the details of his business a close watch over the little things, being careful that there are no wastings of time nor of energy. By enterprise he means a judicious use of *Printer's Ink* in bringing before the reading public in attractive form a list of his wares and a symposium of his business.

The percentage of failures in the poultry business, is perhaps, as great or greater than in any other, and the reason for these failures is not to be attributed to a lack of *demand* for the product of the poultry yard but rather to a lack of *industry and enterprise* on the part of the would-be poulterer. A lack of stick a ive-ness.

These failures deter many from even giving the industry a trial. They cite their own experiences, forgetting to tell the whole truth, and of their lazy slipshod methods of doing things. They have tried artificial incubation with a low-priced, badly-constructed machine, and because of their failure pronounce incubators and brooders a *humbug*. Had they sought the advice of some practical poulterer, one who had made a study of the laws governing artificial incubation, and had been able to put the knowledge gained to practical use, had they not allowed themselves to be made the victims of catchy, dishonest advertisements, had they studied the laws of incubation, and been governed by them, had they been willing to admit that there were some things they did *not* know, and given the manufacturer of the machine credit for *knowing* his business, they would, no doubt, have had a different tale to tell.

A hen, by instinct, stays closely upon her nest when the period of incubation is nearing its end, she does not like to be disturbed, and resents as best she can your inquisitiveness—an incubator cannot fend you off, *gumption* should teach you not to monkey with it. When you shall have served your apprenticeship, and learned, at least in a measure, the science of artificial incubation the comes the more difficult task of brooding. The failures here are many, and we believe that in the great majority of cases they come from too *much* rather than too *little* heat, and a lack of proper ventilation. A chick cannot live in foul air, but on pure air and good food it will thrive.

J. H. Sledd.

Powhatan Co., Va.

Better breeds, better roosts, better feeding, less stuffing, less vermin, and cleaner houses, would be worth millions of dollars to American farmers, and they are all easy of adoption.

AN IMMENSE POULTRY FARM.

The Briarcliffe Farms in New York State give a large place to poultry as one of the profitable adjuncts to a dairy farm. In a recent issue of the *Country Gentleman* we find the following statement: "There are 3,280 head of poultry on the farms of various breeds. Silver Barred and White Wyandottes, Barred and White Plymouth Rocks, and Brown and White Leghorns being represented, each breed being kept separate. These fowls are housed in 31 different poultry houses, distributd over the farm at different points. Each of these houses is 18 feet by 100 feet, with alleys running through the centre. Fourteen 300 egg Prairie State incubators are in use. Last year over 8,000 broilers were raised, and over 60,000 dozen of eggs were sold at prices ranging from 25 to 60c. per dozen, according to season. The average daily egg production is about eight 30-dozen crates.

The poultry expert in charge stated that he fed the hens five times a day—(1) rolled oats; (2) a little cracked wheat; (3) cracked corn or barley; (4) soft feed and cut green bone; (5) cracked corn or cracked wheat. The hours of feeding are 6:30 A. M., 8 30 A. M., 11:30 A. M., and 3 and 5 P. M. He said it was difficult to give the exact feeding ration, as one breed very often required different feed from another. He believed a man to be a practical poultryman, and to be successful, had to live with his poultry. In no other way can he learn their needs.

EARLY CHICKENS.

Many early chickens will be found to die off. This is generally due to the fact that the young chickens have been too closely shut up, in many instances, to protect them from the ravages caused by wind and wet during the cold and stormy weather. Many often die with congestion of the lungs, and it should be clearly understood that little chickens can bear cold, but cannot stand against cold winds. The best method is to place them out in coops, and give them shelter by putting a piece of bag or sacking in front to protect when the cold winds and wet drive upon the coop. The cold winds are most treacherous to the feathered tribe—especially its younger members.

Another important item, not to be lost sight of, is the dangerous system of letting chickens of all ages herd together. This should be strictly avoided. In the first place, poultry-keepers with hens and young chickens coop the hens with chickens of various ages, side by side, some two and others probably four or five days old, and others often two months old. The smaller chickens run in and out among the larger ones.

The hens, knowing their own chickens, peck at the strangers, consequently, this means a chicken or two lost, as each cause of disaster works out to its legitimate end. When a hen pecks a chicken the result is generally a blow on the back of the head. The outcome does not a ways appear at first, but after a few days the chicken begins to droop and die. Where chickens are reared in numbers, they should be separated in groups according to age as far as possible, so that they may be kept healthy and strong. Where people have a limited space, and keep only a few, little wire pens should be used to separate them, but farmers with plenty of space should turn the birds into the fields, as they will then pick up plenty of insect life, which is a food that will materially aid them in developing into fine, strong birds. They will also be able to procure an ample supply of grit. If farmers would only use their many opportunities in this way, it is certain that very much more would be accomplished in the way of profitable poultry-keeping than is at present the case.

GEESE ON THE FARM.

Geese in the market will sell for from fifty to sixty cents, but the kind of geese sold are really worth no more. There has been but little improvement of geese on farms, and it is seldom that they exceed eight or ten pounds in weight. The Toulouse and Embden geese are fully twice as large as the common geese (one being once exhibited weighing fifty-two pounds alive), and a pair would lay the foundation of a paying flock in a few years. The fat goose is a luxury enjoyed only by those who know something of them, and it brings a good price. Turkeys sell higher, but the profits are no larger than from geese. There is a great loss of young turkeys each year, while geese seem to thrive on a grass plot or a pond that cannot be used for any other purpose. As geese will breed until over twenty years old, a flock of the large varieties once obtained will return an income every year which would be satisfactory compared with the capital invested.

If the flock of geese is given a grass plot it will be all that they will require. In winter, however, they should have a mess of ground food once a day. Old geese do not sell in market, and it is a waste of time and money to attempt to so dispose of them. Keep the old ones for breeding purposes, and sell the young ones. One gander may be kept with two geese. There is also a fair profit in feathers.—*Poultry Keeper.*

TABLE FOWLS.

When hatching the chicks for the year why not try to have a few extra ones for your own use that will be nearly equal to turkeys. To do this mate an Indian Game male with Dorking hens, and you will be surprised at the difference in quality when they get on the table compared with common fowls. If you do not wish to buy a cock and hens, procure a male of either the Indian Game or Dorking breed, and mate him with the hens you have, and there will be a great improvement. Such birds should not be considered as ranking very high as layers, however.—*Poultry Keeper.*

There is nothing in its relation to the hen house that is more important than whitewash and a whitewash brush.

When corresponding with advertisers mention the *Southern Planter.*

The Horse.

NOTES.

There are some good prospects for speed and race-horse quality among the trotters and pacers in training at the differemt tracks in the vicinity of Richmond, and some of them are likely to give a good account of themselves before the close of the season. At Acca Farm, with which he has been identified for a number of years, William L. Bass has quite a large stable of horses. Among the good ones that have been through the hands of Bass, are Miss Nelson, 2:11½; Roster, 2:16¼; Firewood, 2:17½; Whitby, 2:18¼; Hulman, 2:20; Lucy Ashby, 2:21½; Roanoke Maid, 2:22½; Branchwood, 2:22½; Ginter, 2:24¼; Gordon Smith, 2:25½, and quite a number more. The training stable at Acca now includes Hattie T., 2:20, pacing, b. m., by Day Star, dam by Viceroy; Fern, b. m., pacer, by Petosky, son of George Wilkes; Branchwood, 2:22½, pacing, b. g., by Woodburn Hambletonian; Little Betz, 2:23¾, ro. m., by John W. Daniels, dam by Captain; Crow, 2:30, blk. g., by Rupee, dam by Dictator; Ellen Broadnax, b. f., full sister to Miss Nelson, 2:11¼; b. f, full sister to Jannie S., 2:30, and others of prominent sires of speed. At the Glenlea track the horses owned by the veteran road-driver and breeder, James C. Smith, are being shaped up for the season's campaign. Mr. Smith recently received the Democratic nomination for City Sargeant, and was accorded the support of many of the most substantial citizens of Richmond. His stable includes the giant gelding Mosul, 2:09¼, by Sultan, out of Virginia Maid, by Sam Purdy; Hulman, 2:20, br. g., by Quartermaster, out of Winnie D., by Hannis, and several others that are well bred and promising. The best prospect owned by Mr. Smith is the bay gelding Roster, 2:16¼, by Alomedo, dam Red Nose, by Red Wilhes, now in the stable of James Carpenter, Reaveville, Mass., who will campaign him this season.

The horses in the stable of Joseph Lasitter are kept at Montezuma farm, but are given most of their work over the Glenlea track. The stable includes the fast gelding Firewood, 2:17¼, by King Nutwood, out of Medina, by Middletown, who trotted to his record in a hotly contested race at Raleigh, N. C., last fall over Maggie Carrell, 2:18¼, and followed it up by defeating that game and speedy daughter of Jack Dawson a week later at Winston; Robert Ransom, 2:29¾, br. h., by Gambetta; General Dashwood, 2:29¾, by Simmons, and some very promising youngsters, among them a two-year old chestnut filly, by Robert Ransom, out of Anna Dawson, by Jack Dawson. All the stables at the old Exposition Grounds track were recently destroyed by fire, but some runners and harness horses are being given their work over the half-mile track there, among them being those in W. K. Mathews' stable, which includes McZeus, 2:13, br. h., by McKinney, out of Grace Kaiser, dam of Coney, 2:07¾; Miss Bird, 2:32½, ro. m., by Jay Bird, dam by Young Jim; Judge Witt, br. c., 2, by McZeus, out of Margaret Walker, by Gembetta, and a very promising yearling by McZeus, out of Miss Bird.

Heimdal, the thoroughbred son of imported Mortemer and the great race mare Vandalite, by Vandal, who for years headed the well known Bullfield stud, is now the property of Mr. F. H. Holladay, Peake's Turnout, Hanover county, who will breed him to some good mares. A magnificent looking horse and of grand size, Heimdal was never favored with much of an opportunity as a sire, yet from his loins came Cataraugus, Century, Hesperus, Hiram, and others.

W. B. Lewis, who represents the American Tobacco Company at Milton, N. C., has purchased from Chas. H. Hurkamp, Fredericksburg, Va., for use in the stud, the thoroughbred stallion Ed. Kearney, by Tom Ochiltree, out of Medusa, by Sensation.

Mr. Thomas Atkinson, of this city, owns a horse that has attained distinction in the show ring and as a sire in the imported hackney stallion Young Nobleman, by Confidence, from a mare by Pricklow, who now heads the stud at Rockland Farm, Gordonsville, Va. Owned for years by Mr. Mitchell Harrison, of the noted Chesnut Hill stud, near Philadelphia, it was while there that the big brown son of Confidence sired a grand looking lot of youngsters, and, exhibited at different horse shows, carried off numerous premiums. When owned in England Young Nobleman carried off among other prizes the gold medal at Islington, while in this country he has captured premiums at Tornoot, Winchester, Westchester, New York city, Philadelphia, and Trenton.

Major Joseph Walker, one of the pioneer breeders of trotting horses of this section, died recently at his home, Holly Springs Farm, near this city. He was born in England in 1829, but removed to New York at an early age, making his home there till the beginning of the war, when he came to Virginia, and after the close of hostilities settled here. Major Walker was well known in this section, and well liked on account of his generous disposition and kindly manners, with which was combined an implicit confidence in his fellow man. Among horsemen he was best known as the owner of the trotting stallion Hetzel's Hambletonian, a full brother to the famous Volunteer, who died his property. Major Walker was an intimate friend of the noted Orange County N. Y. breeder Alden Goldsmith. He is survived by a widow, who was Miss America Brooks, a niece of Joseph Hetzel, the breeder of Hetzel's Hambletonian and Volunteer, and a married daughter, Mrs. Thomas E. Owen.

Egwood, the beautiful bay son of Egbert and Lucille Blackwood, once owned and kept in the stud at Whitby Farm, near this city, by the late H. C. Chamblin, but now the property of James Stackhouse, Marion, S. C., has been secured for the season by D. F. Efird, Lexington, S. C., who will breed him to some good mares this season.

In addition to Egwood, Lucille Blackwood produced Eggnog, 2:25, owned and driven on the road by Walter Winans, Brighton, Eng., and Wyoming, 2:25½, the handsome black stallion, owned by Peter

Reville, Jr., Baltimore. Mr. Efird is an active member of the State Agricultural Society of South Carolina and deeply interested in the breeding problem.

The big bay gelding Kodras, 2:15¼, by Norval, out of Bianca, by Blackwood, Jr., owned by R. H. Rountree, of New York, but kept for some time past in the stable of Joseph Lasitter, died recently, the cause being attributed to heart trouble. Kodras was brought out in 1897by the well known Kentucky trainer, Douglas Thomas, who campaigned him that season and drove him to his record. Kodras was very fast, frequently showing two minutes' speed in his work, but was unsteady in company.

One of the sensations of the Washington Jockey Club meeting, held at the Bennings course, Washington, D. C., last month, was the defeat of the turf queen Imp by Boney Boy in the Bennings Spring Handicap, when the Virginia bred son of Blitzen and Susie B. amply sustained his well earned reputation for gameness and reliability. His victory over the famous daughter of imported Wagner spread consternation in the betting ring, and the talent, who backed Imp heavily to win, lost a tidy sum.

Robert Bradley, of Greenway Farm, who is now about the largest breeder and turfman in Virginia, has a large stable of horses in training this season. The best known member is, of course, the chestnut gelding Boney Boy, a son of Mr. Bradley's old favorite and bread winner, "The Iron Horse" but there are about twenty others, among them being several that are likely to develop into useful horses. The Greenway Farm stallions, Aloha, Evenweight, and Miracle, are represented by some very promising youngsters, who will earn winning brackets.

Cotton Exchange, New York, the grand looking heavy weight hunter Oom Paul, a bay gelding, five years old, 16:1 in height; weight. 1,175 pounds. Oom Paul was bred in Virginia, and sired by Young Orion. The price received was a fancy one. Such horses as Oom Paul find ready sale, and buyers are scouring the country for them, which farmers and breeders in general would no well to recognize, and turn their attention to the production of such specimens.

Let us have your subscription to the *Southern Planter;* it can be had for the nominal sum of fifty cents a year, and each issue contains more good reading matter and valuable information than can be found in any journal of its class. The *Planter* is the oldest agricultural journal in the country, and is conducted on a broad, liberal policy, while its friends and subscribers are numbered in nearly every State and Territory in the country

Chorister, the great and grand looking thoroughbred stallion, of whom mention was made in the April number, stands in my neighborhood. I certainly think that Virginia horsemen should breed to this great horse, as this may be the last chance for the public to get his service.

F. A. Heatwole.

Dale Enterprise, Va.

OPENING OF THE BREEDING SEASON.

It will be a busy breeding season. Farmers have finally gotten it through their heads that there is a future for horses and more mares will be bred the present season than for years previous. The demand for stallions still continues, as it took quite a little while for some men to make up their minds that there was really a call for good sires. While some stables are pretty well cleaned up, yet there are a lot of good horses left that should be in districts where suitable mares can be found.

A marked feature of the situation is the demand for jack stock. Mules were never so scarce in this country since the industry attained important proportions, and the British government still has its agents at leading markets buying all mules suitable for use in the South African war. Thoughtful observers of the situation are of the opinion that the war with the Boers has hardly yet begun, and with the immense numbers of troops afield from Britain the demand for mules will continue large. Moreover, the American mule has given so good an account of himself in the countries to which he has been recently taken for war purposes that a permanent market for the hybrid seems certain to be established. All these facts have not escaped the attention of the American farmer, and many mares will be bred to the jacks this season. In consequence of this demand the prices on the best jack stock have soared skyward. It is invariably the case that the larger the jack, the larger the price. How about it? Is "Albion" right in holding out for jacks under 15 hands? What say mule-breeders?

It is now high time that the press should be brought to realize and to advocate the good points of the Hackney and its crosses on American stock, and cause the public to understand that the Hackney, which has been bred pure for hundreds of years, has formed, in great measure, the foundation stock of most natural acting harness horses throughout the world; and that it is to the Hackney that the American trotting-bred horse traces directly, and that from the blood of the imported Hackney Bellfounder, which came to Boston in 1822, and which stood for service here for twenty years, coupled with the blood of imported Messenger (thoroughbred), have sprung the leading trotting families in this country.

A. L. McClellan, of McCleary & McClellan, Norfolk, Va., has a fine collection of trotters and high-stepping harness horses at his country place, Oak Forest farm, five miles from the city. Mr. McClellan has a grandly bred young horse at his farm in Director, Jr., a three year-old son of the great Director and Mamie Wilkes, by Red Wilkes.

Mr. Charles H. Hurkamp, of the Amaret farm, Fredericksburg, Va., has sold to H. Norden, of the

Broad Rock.

Miscellaneous.

CONSTITUTIONAL CONVENTION FOR VIRGINIA.

Probably in a few years' time the only legislation for which the Legislature of Virginia which has recently adjourned, will be remembered will be the act providing for taking a poll of the people on the question of holding a convention for the framing of a new Constitution for the State, and even this act will, we opine, be not altogether credited as a wise and fair one, in that the form in which the poll is to be taken is one not free from the curse of party and political bias. The framing of a new organic law for any State ought to be so essentially the voluntary act of the people of the State, that no party or political bias ought to be discoverable in the machinery or forms devised for ascertaining the will of the people. Whilst we are strongly in favor of the framing a new organic law for the State, if for no other reason than that we cannot be met with the reply when we suggest reforms calculated to reduce the extravagant cost of our State and county government, that the Constitution of the State creates and compels the appointment and payment of officers almost innumerable, we yet think that such a work ought not to be undertaken at a time when practically, as is the case now, only one political party exists in the State. If it be undertaken at such time, then it imposes upon that political party an obligation to disinterested patriotism which we much fear it will not rise to. We make this comment with a vivid recollection of the scenes we witnessed when the State was last redistricted for representation. At that time it seemed to us that no question of a fair representation of every political party in the State was aimed at, but rather that the dominant party should so "gerrymander" the constituences as to maintain itself in power in despite of the will of the people. We trust that in this we may be disappointed, and that the Convention, which we doubt not will be held, will rise to the situation and be composed of the best men of all parties, not merely politicians, but the brainy men of the State who will see to it that not the political interests of one party, but the best permanent interests of the State and of all parties are cared for. No nation or State ever yet secured the best laws where one political party was overpoweringly dominant all the time. The best legislation is always secured where a minority party is sufficiently powerful to exercise effectual criticism on the acts of the dominant party for the time being. We look forward to the time when the Constitution of the State will be so framed as that it will merely contain a few leading fundamental principles and not seek to bind the actions of the representatives of the people in enacting legislation required to meet the changing conditions of the people as those changes arise. If we are ever to have good and economical government, it must be by requiring taxation and representation to go together. Taxation without representation is tyranny, but representation without taxation is worse than tyranny, it is madness. The man who votes should be educated and pay some taxation, and then we may reasonably expect to have care exercised in the expenditure of the people's money. The old Scotch maxim is as sound to-day as it was when first enunciated: "The man who pays the piper has the right to call the tune." He who does not pay should have no say as to the music.

RICHMOND FREE STREET FAIR AND CARNIVAL.

The citizens of the Capital City of this State purpose to offer the people of the State and Nation a great free fair and carnival to evidence to them that there is life in the old place yet, and that in the midst of improvements now being made in and around the city for the greater development of its natural resources, and for bringing it into closer communication with the outside world, it is mindful of its position as a capital city, and anxious to keep itself in evidence before the world. The Fair will run from the 14th to 19th of May, and the attractions promised are numerous and striking. Though the period fixed for holding the Fair is one not calculated to meet the convenience of farmers, especially this late spring, yet we have no doubt, many will make an effort to be present on at least one day, and they will be welcomed to the city the more warmly for the effort it will cost them to be present. The railroads offer special low rates from all points.

FARMING SEVENTY-THREE YEARS AGO.

Editor Southern Planter:

I am the owner of the ninth volume of the *American Farmer*, published at Baltimore, Md., by John S. Skinner. This moth-eaten volume contains much that is interesting about the early agriculture of the Southern States. There are the same old and still new complaints about hard times, scarcity of forage, "negroes selling for a song," etc.

The number for October 16th, 1827, contains an exhaustive paper upon the profit of manufacturing cotton bagging from the fiber itself—a subject that is returned to with unwearying iteration throughout this volume, but evidently without practical result. There is the premium list of the Pawtucket Fair, which

offers prizes for Merino rams 1st, 2d, and 3d best, to which the editor appends a note suggesting that the 3d best ram have his throat cut. There are also premiums of $5 to $20 for the best yields of celery, corn, grass, honey, and cider, and for the successful breeding of sea fish in fresh water ponds.

The editor chronicles the fact that Mr. Edward Massey has sent him an apple of the Pippin class weighing 25 ounces and measuring 15 in circumference.

In the "Ladies' Department" there is a fancy sketch of "Mrs. Busy," evidently written by some blue stocking recently jilted by her lover. "Mrs. Busy" educated at a boarding school, where she learnt all the current accomplishments, but marrying at 18 a country gentleman, she neglects her fancy work altogether, and soon develops into an ideal house wife—such, in fact, as the average professional man with a taste for farming, or a sporting farmer with a distaste for it, always desires but so rarely secures. In this case Mr. Busy belies his name, fills his yards with sporting dogs and devotes his days to the pursuit of fabled Reynard, Woodcocks, and other game, and his nights to carousing with persons of his own tastes. Mrs. B. is, however, equal to the emergency and devotes personal attention to the dairy, sheep-fold, and granary with the result that her sporting spouse can not even squander the entire income of the estate, though he tries his very best. Eventually, while duck shooting, he catches cold, takes a fever and dies. Mrs. Busy, as custom dictates for an inconsolable widow, shuts herself up in her chamber, but after dark steals out to make sure that the milk maids have fully "stripped" the cows. She has many offers from neighboring bachelors who had recently envied the late Mr. Busy, but she justly scorns the mercenaries. Her children are educated on the Hebraic system, and at very tender ages become accomplished enough to cheat even their mother. The moral of the story is rather obscure.

The Baltimore market for October, 1827, is as follows: Tobacco—slow sale, Maryland common, $3 to $4; second, $3 to $6; fine red, $6 to $8.50; yellow and red, $7 to $10; fine yellow, no sale. Flour, $4.25 to $6. Corn, 43 to 45c. Rye, 40 to 50c. Clover seed, $3.50 to $4. Oats, 20 to 25c. Beans, 80c. to $1. Flax seed, 75 to 80c. Cotton, 9½ to 10c. for upland Carolina; 11 to 13c. for Louisiana. Bacon, 7 to 7½c.; hams, 10c. Whiskey, 26 to 28c. by the hhd., by the bbl., 28 to 30c. Beef on hoof, $4 to $4.50. Live hogs, $3.50 to $4. Butter, good, 20 to 25c.; ordinary, 15 to 18½c. (How closely many of these prices compare with those now current.—ED.)

The following number is largely devoted to accounts of "Cattle Shows," which was the current designation for what me now miscall agricultural fairs. There is also much sporting intelligence, a long account of the sale of American Eclipse for the unheard of sum of $8,050!!!!

William Prince, of New York, gives a long catalogue of new pears lately introduced from France, but none of these are popular now. Mr. Prince had also lately introduced 43 varieties of the Chrysanthemum, which flower he praises in the true nurseryman style.

From a subsequent article we learn that the following varieties of apples were grown upon one farm in Maryland, and offered in competition for a prize at the "Cattle Show" of the Maryland Agricultural Society: Carthouse, Robinson, June Eating, Rambo, Catlin, Green Pippin, and Andover Russet, Grindstone, Red Streak, Sheep nose, Siberian crab, and a dozen other varieties now forgotten.

Silk culture, too, attracted much attention, and the Commissioners of Johnston county, N. C., were commended for establishing a silk producing plant at the pauper asylum of that county.

At the meeting of the Dorchester (Md.) Agricultural Society, Dr. E. Muse, the president, delivered an address referring among other things to what he sarcastically calls the "Dorchester System." "Three hundred acres usually constitute the farm of the beginner. These are laid off into three fields, one for wheat, which the land will not grow; one for corn, which will not sell for enough to pay cost of cultivation, and one for an old field, some times called a pasture. * * * This system is one of the morbid addictions based upon custom, and is as ruinous as it is general and steadfast." The Doctor further on says the condition of farmers is well nigh desperate. As a remedy he advocates the much despised book learning, especially entomology, botany, and chemistry.

The editor, appropos of a suggestion that twenty farmers should contribute to a prize fund to be awarded to the one raising the best wheat crop on six acres. Says, "That twenty farmers should risk five bushels of wheat in such a contest is as improbable as that they should go to the north pole with Symmes! Days and weeks, and sleepless nights they will spend canvassing and scheming for some petty office, but it would be too laborious to undertake such a competition as would likely improve permanently the wheat crop of the section." &c. &c., from which one may infer that scrub farming and farmers are not, as some think, products of the "late unpleasantness" between the States.

GERALD MCCARTHY.

Mention the *Southern Planter* when corresponding with advertisers.

THE VIRGINIA STATE FARM.

Editor Southern Planter:

Sir,—I desire to express a few thoughts through your columns in relation to the use and management of our State farm. No one will deny the fact that the farm was purchased, and to some extent is being kept up by the tax-payers of the State. I am one who thinks it but just that they should receive some benefit from it, and that the benefits should not be confined to the different branches of trade, as it is now, and that the farmers, who are the heaviest tax-payers in proportion to their holdings of any class in the State, be left out in the cold. Looking to the betterment of their condition, I would respectfully suggest that the farm should be equipped with the very best cattle, sheep and hogs that can be obtained, adapted to the climatic conditions of the State. The stock should all be purebred and registered, and a complete herd book be kept by the manager and open for inspection.

The object of this enterprise should be to furnish to the farmers of this State purebred animals of the different species at such prices as would be within the reach of the average farmer of Virginia, and thus work up the standard of the stock of the State to the position it ought to occupy. This could be rapidly done if the managing Board, backed by our broad minded legislators, would act promptly and purchase a liberal supply to start with.

My claim is that the State would, in time, receive back every dollar of its investment by the sale of young stock, and at the same time increase its revenue by increase in valuation through the stock disseminated. I would further suggest the wisdom of procuring a variety of each class so as to meet the wishes of all. In cattle, the Red Polls, Herefords, Shorthorns, and Polled Angus. In sheep, South Downs, Hampshire Downs, and Shropshires. In hogs, Poland China and Berkshires. All the varieties named have been proven well suited to this State, and are the best general purpose animals grown anywhere in the world. I am familiar with the State farm, and believe it to be well adapted to the business.

I spoke to the manager about the matter recently, and he thought the Board would deem it too much of an infringement upon private enterprise. Permit me to say in reply that the State is now the chief competitor with one crop, viz, tobacco, in that it is the most extensive tobacco grower in the State. Over 300,000 tobacco plants were set out on the State farm in the year 1898 (what was done in 1899 I am not advised). This crop is in direct competition with the masses, whilst the competition in stock lines would be with a limited number, and those the few who seek to enrich themselves by charging our citizens enormous prices for their stock. The idea of the average farmer being able to pay from $100 to $300, and in some cases even $500 to $700, for a bull or heifer calf a few months old. It is simply out of the question. We, as a State (I speak of the farmers at large), have never recovered from the results of the war, except in highly favored sections, and I ask how can we ever do so if the State does not come to their aid in some way?

My idea is that the State would be greatly benefited, not only from the increased value of stock, but better barns would be required, more of valuable manure would be saved and utilized, hence better farms, which would be sought for instead of being a drug upon the market, as thousands of them are to-day. Some one might ask what can we do with the labor if we put the farm in grasses? I answer, put the convicts upon the roads, which are sadly in need of work. Good roads mean also improved farms, increase in value, hence increase of revenue to the State, and I may add that when farmers are prosperous every branch of industry feels it. They will wear better clothes, drive finer horses, ride in better carriages, have better tools, educate their children more extensively, Farmers' Institutes will be organized, and thus their minds broadened by comparing notes, reading papers, and discussing methods and experiences. Better schools and school-houses, churches and sermons would soon follow.

In conclusion, let me add that this grand old Commonwealth should arouse from her lethargy, shake off the shackles of antiquity, and take rank in agriculture, as she does in statesmanship, with the foremost States of the nation.

Goochland Co., Va. A. NORTON.

[We commend this suggestion of Mr. Norton to the attention of the Legislature and the Directors of the Penitentiary. There is great force in what he says. —ED]

HOW TO IMPROVE CREAM.

Conditions at some creameries during the winter months are such as to make it next to impossible to produce a cream which go upon the market as good cream. The supply of milk runs low, and the patrons, as well as the proprietor, want all the milk possible to go to the creamery; the result is, that some of the patrons, if not the majority, bring in their milk three or four times a week, which, in many cases, means acid milk which means, if not acid cream, at least cream which will keep but a short time unless held at a low temperature—45° F., or below.

The writer has found that under such conditions, the quality of the cream can be very much improved by setting the cream screw so that a cream separated about fifty per cent. butter fat, and reduced with perfectly fresh milk to twenty per cent. or twenty-five per cent., or as may be desired. The milk largely overcomes any acidity or other bad flavor the cream may have. The practice would be a good one to follow, as a general rule, summer and winter, because fresh, well flavored morning's milk would very materially add to the quality of the cream at any time intended for market.

V. P. I. CREMERY.

Blacksburg, Va.

Mention the *Planter* to your friends.

THEN AND NOW.

Editor Southern Planter:

Sixty-five years ago I was a small boy, living at my grandfather's in old Caroline county, Va. He had a large, poor, sandy farm, a large family to take care of, and about forty negroes, old and young, but mostly women and children, which made it more expensive to take care of them. Everything needed in the way of food and clothing required by those living on the farm was made on that farm, except sugar, coffee and tea. It was thirty miles north of Richmond, yet a field of cotton was grown every year, gathered, the seed picked out, the cotton spun and woven on the place. A flock of sheep was kept, and the wool manufactured into cloth on the place. All the clothing, with few exceptions, for white and black, was woven and made upon the farm. One woman did nothing but weave the year round, and some of the prettiest yarn counterpanes I ever saw were woven on those old country looms, which were also country-made. There were no mowing or reaping machines then—only grafs blades and grain cradles. My grandfather was one of the few who owned a machine for threshing wheat. After it was threshed out it had to be fanned out of the chaff.

In harvesting the corn, the fodder was pulled and the tops cut, and then a large frame stack was made of the tops on three sides of a large yard, with the open side next to the south. The yard was divided into three lots, all running under the shelter which was on the north side. All the cattle and sheep were kept here during the winter. The two side stacks were hollow, and the shucks were saved in them. Near the same lot the wheat was threshed, and all the straw, shucks and fodder were fed up during the winter to the stock in the yards. In the spring, the frame of rails was all removed and piled up to be used again when wanted. The manure was then spread on the surrounding land as far as it would go, and that made the tobacco lot. In the fall, when the tobacco was cut, that lot was put in wheat. Every year a new place was selected for the farm pen and tobacco lot. In the summer, the cattle were penned on some poor spot and the pen moved every now and then, thus improving the land. One of these lots was made the turnip patch. My grandfather kept quite a large lot of cattle, raised his own oxen (of which he kept several yoke), which were used on the farm. During the winter, he would take the field he was going to put in corn and lay the rows off five feet apart, and take several ox teams and all the spare hands and haul the trash from the adjoining woods, raked up with hoes, so as to get all the mould under them as well as the leaves, and fill the corn furrows with this. This was covered with turn plows forming a five-foot list or bed. When it was time to plant corn, furrows were run across the list and the corn dropped in the check. In this way a very good crop of corn was made—certainly enough for all needs on the farm. This farm not only paid all expenses, but made a surplus every year. The tobacco and all the wheat not needed on the farm, was sold. All hauling to market was done with wagons. Most people then threshed their wheat out with horses ridden or driven on it in a circle, and then fanned it. This was the kind of farming done up to the fifties or later. The country was then prosperous. Who would now think of growing cotton north of Richmond, or cutting a crop of wheat with cradles or grass without a mower? Times have changed greatly. Are the people any better off, or are they any more contented now than then? Railroads have come and created competition all over the country. Wants have multiplied, but have the means to meet them multiplied too? Are not many of these wants imaginary?

Hanover Co., Va. COUNTRY.

SLACK WIRE FENCES.

Many wire fences are largely shorn of their effectiveness and their length of usefulness by neglect in not keeping the wires tight. When once the wires become slack, the posts begin to give way and soon a broken place occurs. This may easily be prevented by watchfulness and the application of a system of tightening the wires suggested by a correspondent, Mr. James A. Boffin, of Bealeton, Va. When first the wire begins to sag, he loosens it from the post and slips between the wire and the post a piece of wood an inch or so thick and two or three inches long. He then staples the wire fast to the post close on each side of the slip of wood, thus taking up some two or three inches of slack at each place where this is done. It looks neater taken up in this way than twisted with a piece of stick, and keeps its position longer, besides lengthening the life of the fence.

USING SULPHUR FOR LICE.

Early in the spring is the time to destroy lice, any work done being better than later on, as the pests are sluggish and not so active. The best method is to drive the hens out and burn five pounds of sulphur in a house 10x10 feet. That is a large amount of sulphur, but it is necessary if the work is to be well done. Those who use sulphur for the purpose do not burn enough of it, and, as it is cheap, it is safer to use too much than too little. It is also important that every crack be closed and the house made tight. Have an old pot or piece of sheet iron made red hot, and place it on a brick, to avoid setting fire to the house; put the sulphur on and close the door, leaving the house closed for two hours. A mixture of kerosene and sulphur will also burn well, but use plenty of it or the work will be useless.

THE

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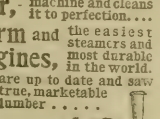
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PUBLISHERS' NOTES.

In the hope of inducing many who are not at present subscribers to *The Planter* to become such, we will send to any one sending us 25 cents, either in coin or in postage stamps, the issues of *The Planter* from this date to January, 1901. This will give to each such subscriber 8 copies of the Journal. We are satisfied to do this, not because it will be directly profitable for us to do so, for each copy sent will actually cost us more than we shall get for it, but because we know from past experience that if we can only secure the attention of farmers to *The Planter* for a few months and a knowledge of the value of the information contained in it, that we can safely count upon them becoming subscribers and continuing such. We would ask our friends to bring this offer to the notice of their neighbors and friends and help us to increase our list of subscribers.

We will send Dr. Killebrew's new work on "Grasses and Forage Plants" free to any one who will pay $1.00 for two year's subscription, or will send $1.00 for a year's subscription for himself and a friend or neighbor. This is the best work published on Southern grasses. It is by a Southern man living in the South.

Binders for The Planter.

We have now received a new supply of binders for *The Planter*, and shall be glad to send one holding the numbers for a year to any one sending us 25 cents. These are very convenient for preserving the copies clean and whole for binding at the year's end.

COMPRESSED AIR SPRAYER.

Mess. D B. Smith & Co., Utica, N. Y., are advertising their Lightning Compressed Air Sprayer in another column. This sprayer can be utilized for every kind of spraying. Send to the makers for circulars and prices.

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MAGAZINES.

Quite appropriate to the May number of the "*New Lippincott*," which issues on April 21st, is the title of the Complete Novel, "April Showers," by Alice Brown, author of the delightful "Tiverton Tales." The title fits the story, too, in which clouds and sunshine chase each other in quick succession. Miss Brown is, like Mary E. Wilkins, a New England woman, clever and forcible, and her characters are drawn from the same soil.

S. R. Crockett's story, called "The Troubler of Israel," cannot be excelled in humor and tenderness, and is entirely worthy of the author of "The Stickit Minister."

Mrs. Hudson's fifth Mormon Story, "The Avenging Angel," has a gleam of humor in it to lighten the otherwise tragic tale about a Scotch woman who adopted the Mormon faith and dragged out an existence among the elect. Her husband joined the murderous Danites and became "An Avenging Angel."

"The Siege of Plevna," Stephen Crane's third article in his series on "Great Battles of the World," bears with timely significance on Ladysmith and Mafeking.

Elizabeth Robins Pennell describes "One Way to See the Paris Exposition": that is, on a bicycle to the suburbs of Paris; and she believes that any one who owns a wheel should not visit the Exposition without taking it along, because travelling accommodations and arrangements for such things have been carefully prepared.

Appleton's Popular Science Monthly has articles on "Coming Total Eclipse of the Sun," by Professor F. H. Bigelow; "The Most Expensive City in the World—New York"—by Bird S. Coler; "The Negro Question," by Professor Shaler; "International Law and the Peace Conference," by James Vickery. These and the other contents of the number are very interesting and instructive reading.

Harper's Illustrated Weekly and *Harper's Bazar* are two of the best illustrated journals published. They fill a want in every family, and are always unexceptionable in tone and execution. Upward of fifty writers and artists contribute to the May *Ladies' Home Journal*, consequently variety is combined with excellence throughout its pages. Rudyard Kipling drolly tells of "The Beginning of the Armadillos." Mary B. Mullett writes of "The Real Thrums of Barrie"; Clifford Howard, of "The Flower that Set a Nation Mad"; Mabel Percy Hakell, of "A Famous Boston Belle"; and the Rev. Cyrus Townsend Brady continues his experiences as "A Missionary in the Great West." Ian Maclaren's article answers the query "Is the Minister an Idler?" and Edward Bok writes of early marriage and of domestic science in the schools. Two pages of pictures, "Through Picturesque America"—the second of a series—raveal the beauties of our country's scenery. The drawings, "The American Girl on the Farm," by H. C. Christie, and "The Minister at Tea," by A. B. Frost, worthily fill a page each. Fashions for women and for girl graduates, cooking, and in fact every phase of home making, from the "Etiquette of Dances and Balls" to "How to Treat and Keep a Servant," are included in the May *Journal*.

The Forum for May has a number of fine articles on questions of present-day interest. Amongst these will be found "The Constitution and the Flag," by Charles Denby, late United States Minister to China; "Uncle Sam's Legacy of Stars," by Henry O. Dwight; "John Ruskin," by William P. P. Longfellow; "The Approaching Presidential Campaign," by Henry L. West. "The United States and the Future of China," by W. W. Rockhill, formerly Assistant Secretary of State; "The Remnant of Our National Estate," by Samuel F. Moffett; "The Hay-Paunceforte Treaty," by H. Wade Rogers.

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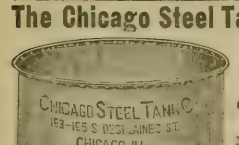
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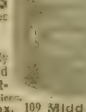
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No. 15. Hunting and Fishing.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Experiment Station Record, Vol. XI, No. 8.

Division of Agrostology. Bulletin 22. Co operative Experiments with Grasses and Forage Plants.

Division of Statistics. Bulletin 17. The Cotton Crop of 1898–'99.

Office of Experiment Stations. Bulletin 75. Dietary Studies of University Boat Crews.

Farmers' Bulletin 31. Alfalfa or Lucerne.

Farmers' Bulletin 111. The Farmer's Interest in Good Seed.

Farmers' Bulletin 112. Bread and the Principles of Bread-making.

Farmers' Bulletin 114. Experiment Station Work.

Division of Agrostology. Circular 23. Progress of Experiments in Forage Crops and Range Improvement at Abilene, Tex.

Division of Agrostology. Circular 24. Cow-peas and Corn for Silage and Fodder.

Division of Botany. Circular 24. Red Clover Seed.

Division of Botany. Circular 25. The Seed of Beardless Brome Grass.

Division of Botany. Circular 26. Egyptian Cotton in the United States.

Office of Public Road Inquiries. Circular 34. The Social, Commercial, and Economic Phases of the Road Subject.

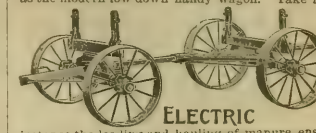
California Experiment Station, Berkley, Cal. Bulletin 127. Bench Grafting. Resistant Vines.

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Colorado Experiment Station, Fort Collins, Colo. Twelfth Annual Report, 1899.

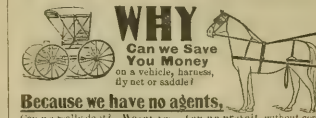
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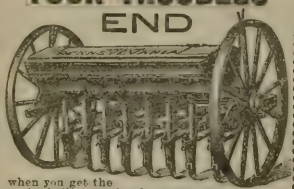
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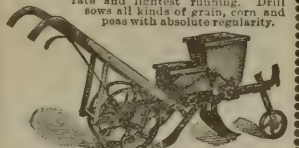


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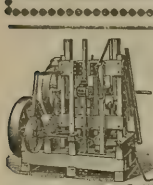


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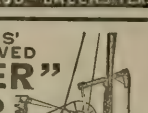
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Cornell Experiment Station, Ithaca, N.Y. Bulletin 180. The Prevention of Peach Leaf Curl.

Bulletin 181. Pollenization in Orchards.

Kansas Experiment Station, Manhattan, Kas. Bulletin 94. Sugar Beets.

Kansas State Board of Agriculture. Report of the Board for Quarter Ending March, 1900. "Forage and Fodders."

Maine Experiment Station, Orono, Me. Bulletin 61. Notes on Insects and Plants.

Maryland Experiment Station, College Park, Md. Bulletin 63. Experiments with Feeding Pigs.

Bulletin 64. A Study of the Cause of Mottled Butter.

Michigan Experiment Station, Agricultural College, Mich. Bulletin 177. South Haven Report for 1899.

Bulletin 178. The Production and Marketing of Wool. This is a very useful Bulletin for all sheep men, and will be sent on request.

Missouri Horticultural Society, L. A. Goodman, Secretary, Westport, Mo. Forty-second Annual Report.

Nebraska Experiment Station, Lincoln, Neb. Bulletin 62. The Feeding Value of Sorghum.

Bulletin 63. The Fatal Effect of Green Sorghum.

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Bulletin 70. Experiments with Muskmelons.

Rhode Island Experiment Station, Kingston, R. I. Bulletin 62. Chemical Methods for Ascertaining the Lime Requirements of Soils.

Bulletin 63. Feeding Stuff Inspection.

Texas Experiment Station, College Station, Tex. Bulletin 54. The Irish Potato.

Spray Calendar.

Tuskegee Normal and Industrial Institute Experiment Station, Tuskegee, Ala. Fertilizer Experiments on Cotton.

Virginia State Weather Service, Richmond, Va. Report for March, 1900.

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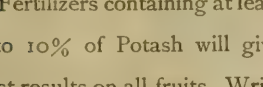
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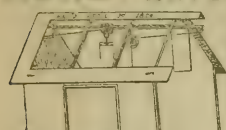
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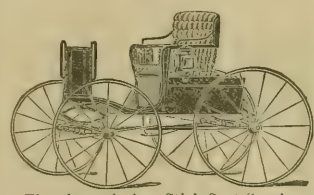
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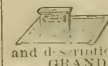
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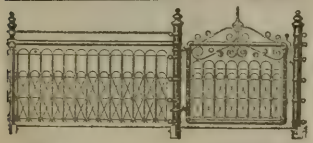
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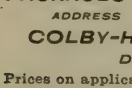
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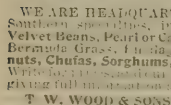
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been. One of its principal advantages is the drag bar, a single flat steel bar, which will stand any strain and which is placed on the concave side of the disk, thus giving direct downward pressure, and causing the lightest possible draft. It has a front lift, affording easy access to the disks for oiling. There is not a single cog wheel on the drill, and the bearings are practically dust proof. Our readers will do well to send to Messrs. Brennan & Co. for their booklet explaining the principle and construction of this really great implement.

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Costs less than one cent gal. when mixed. Two 45 gal. bbls. delivered to your station, freight paid, at same price. No deviation in price. One price to all. To nurseries, city parks and Commissioner of Groves, in two or three barrel lots at a discount. Directions how and when to spray with each can, keg, or barrel. Do not wait for the rush, get ready now.

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Southern States supplied by T. W. WOOD & SONS, Richmond, Va.

Pumpkin Seed

From selected specimens of the **Virginia Mammouth.** I have so carefully propagated this variety during the last few years, that they now grow truly immense, and keep until February. I grew 100 tons in the corn last year at no additional expense. For cattle, sheep and hogs they are equal to bran or other expensive feeds. Sow at planting time mixed with corn in planter, or two or three weeks later, and it will invariably be to your profit. One pound will sow two acres. Price, 30c. per pound, delivered.

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Catalogue mailed free upon request.

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COW PEAS
FOR SALE.

Black, clay, red and other varieties.
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$3 PER ACRE AND UPWARDS.
Easy Payments. Catalogue Free.
GEO. E. CRAWFORD & CO., Richmond, Va.

MIDDLE SOUTH WOOL BOOK.

We have received from the Leaksville Woolen Mills, of Leaksville, N. C., a very attractive and valuable evidence of their enterprise in the form of a cloth-bound, gold-stamped book of one hundred pages, which is filled with practical information, not only upon the subject of wool and how to grow and ship it to the mills, but a great variety of useful knowledge for the Southern farmer, his wife and children. The work of the year, which originally appeared in this paper, cooking recipes, care of trees and animals, interest rules, weights, Latin phrases, tips for housekeepers, hints on color and dress, etiquette, business laws, historical events, inventions, progress of the South, and Bible facts make this book well worth having.

It is to be sent out by the Leaksville Woolen Mills in accordance with their offer, which appears in our advertising columns.

THE KEYSTONE SIDE DELIVERY RAKE.

"Make hay while the sun shines" is still good advice, but the up-to-date haymaker realizes it as equally true that too much sun will do his hay serious damage. A surprisingly large per cent. of nutritious and digestible matter is lost from hay that lies exposed to the sun too long. The best results can be obtained when the grass can be air cured, not sun bleached, preserving in the hay a good green color.

The ingenuity of inventors has been taxed to produce a machine that, while gathering the partly cured hay into windrows, would not pack it together, but admit a free circulation of air through the entire mass. The hay must also be turned over so as to expose the greener layer beneath.

The Side Delivery Rake, made by the Keystone Manufacturing Co., of Sterling, Ill., is successfully meeting these requirements in handling all kinds of hay, alfalfa included.

This new rake is provided with two sets of teeth, or rakes, which are placed at an angle to the front of the machine, and are rapidly revolved by a powerful bevel gear. These teeth do not touch the ground to scrape up trash, but catching the hay at a side angle, turn it over and toss it off to one side in a light, airy windrow. This windrow is continuous from start to finish, and is made large or small as desired.

There is no dumping or other work to be done by the driver.

The machine rakes wide, fast and clean. Built on the continual revolution principle, it runs smoothly, is light in draft and long lived.

Following the work of the rake, the Keystone Hay Loader will load the hay into wagons at a five to ten minute rate per load, and requires no extra horses to run it. It hooks on to the rear of the wagon and will take hay from windrows or cocks.

The simplicity and economy of this method of handling the hay crop commends it for general use.

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BUFF P. ROCKS.
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BLACK LANGSHANS.
(Dr. Robinson's Strain.)
S. C. B. LEGHORNS.
(Forsyth Strain.)
EGGS, 15 for $1.50; 30 for $2.50. FOR SALE: 50 Leghorns, sired by First Prize Cockerel Hagerstown, Md., 1897; 30 Langshaus, sired by Cockerel direct from Dr. Robinson. $1.00 to $3.00 each.

Eggs for Hatching
Plymouth Rock, Light Brahma, Brown Leghorn, Indian Game and Pekin Duck Eggs at $1.00 per setting, securely packed. A few well bred SHEPHERD PUPPIES. Can send pairs not akin at $5.00 each. Also a nice lot of FOX TERRIER PUPPIES at $5.00 each. Several young BERKSHIRE BOARS large enough for service at $10.
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BARRED PLYMOUTH ROCK EGGS
Special matings for season of 1900. My yards have been inspected by Judge Hege, of Raleigh, N. C., to whom I refer
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EGGS FOR HATCHING.
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S. C. BLACK MINORCAS and S. C. WHITE LEGHORNS,
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EGGS FOR SITTING Thoroughbred Barred Plymouth Rock and Black Minorca at $1.00 per 15.
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PAINT TALKS, XXVII.

REPAINTING.

In endeavoring to further the interests of paint consumers it may seem like useless repetition to reiterate so frequently the same fact; but still I do not think it can be too strongly impressed upon the mind of the man that pays the bill that the chief use of paint is to protect his buildings. Buildings and the materials of which they are constructed are so much more expensive than paint, and they deteriorate so rapidly under exposure to the elements when unprotected by paint, that it is the most expensive kind of parsimony to neglect or defer painting. Paint is of more importance than insurance, for whereas the chances are against the burning of any particular building, its depreciation in value and ultimate ruin is certain to occur if painting be neglected.

Paint is of value as a protective agent in the measure that it shields the surface beneath from the action of moisture and the elements. A paint that forms an impervious coating is therefore of more value than one that becomes absorbent. This is the weakness (sometimes claimed as a virtue), of pure lead and oil, that it rapidly loses the gloss given to it by its contained oil, and becomes absorbent of moisture. When this occurs its protective value is gone and prompt repainting is necessary.

Thus we see that it is not always advisable to wait until the painted surface shows signs of actual wear before repainting, and this is especially the fact where pure lead in oil has been used. The sign that the time for repainting is at hand is the loss of lustre in such paints

Other paints, such as the iron oxides, for example, remain practically impervious after the gloss has disappeared, and on such paints repainting is not generally imperative until the surface begins to show cracks.

With combination paints containing zinc white the lustre usually remains for a very long time, and even after it has disappeared such paints remain impervious to moisture as long as the surface is intact. When cracks appear repainting is necessary. Instances, however, have recently been cited by advocates of pure lead where combinations containing zinc white have developed no cracks in twenty-five years' service. After that cracks appeared, but it was not until repainting had been done twice or thrice with pure lead.

This experience would indicate that the repainting should have been done with the original material—a combination paint based on zinc white.

Some painters, while admitting the superiority of zinc paints for all other purposes, insist that pure lead and oil should be used on new wood for the first or so-called "priming" coat. Without entering into a discussion of this question, it is worthy of note that a building once painted with lead fulfils this condition when repainting becomes necessary. In such cases, therefore, a combination containing zinc white should be used.

To sum up: it never pays a property owner to economize in paint. It is cheapest for him to repaint rather before than

Poland-China Hogs,
Coach Dogs,
Collies and Greyhounds,
Belgian Hares,
Book on Hares free.
White Leghorns,
Black Minorcas,
Barred Plymouth Rocks,
Pit Games,
Pekin Ducks,
White Holland Turkeys.
EGGS for Hatching.
INCUBATORS.
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..EGGS..
BUFF LEGHORN, WHITE GUINEA } 15 for $1.50.
WHITE PEKIN DUCKS, 12 for $2.00.
WHITE HOLLAND TURKEYS, 12 for $4.00.
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Without Doubt the WHITE WYANDOTTE
Is the COMING fowl of this country. After many years experience with a dozen breeds, I give the preference to the White Wyandotte. Layers of large brown eggs, and a pile of them. One dollar per setting; $4.00 per 100.
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L. Brahmas, B. P. Rocks and S. C. B. Leghorns.
The best is the cheapest We have them. Prices and circulars free.
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EGGS for hatching from the following pure-bred varieties, at $1.00 per 15:
White and Barred P Rocks, Lt. Brahmas, Partridge Cochins, S. S. Hamburgs, S. C. B. Leghorns.
PEKIN DUCK EGGS, $1.00 per 11.
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hatches all the fertile eggs; is simple, durable and easily operated; 168 page catalogue containing information and testimonials. Sent free. GEO. ERTEL CO., QUINCY, ILL.



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EGGS

$1.00 per 15.

M. B. Turkey Eggs, bred from 45-lb. tom, $3.00 per doz.; Toulouse Geese Eggs, $3.00 per doz.
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HOLSTEIN-FRIESIAN CATTLE..
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after it has become absolutely necessary; and the most economical because the most protective and the most durable paints are those containing zinc white.

STANTON DUDLEY.

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The Chicago House Wrecking Co., Chicago, Ills.

The Kalamazoo Carriage and Harness Manufacturing Co., Kalamazoo, Mich.

The Farmers' Supply Co., Richmond, Va.

The Bateman Manufacturing Co., Grenloch, N. J. The improved Robbins Potato Planter.

Notes on Paraguay, South America, by E. Plate.

Some information about the Root "Sang" or Ginseng, and cultural directions, by H. P. Kelsey, Boston, Mass.

The Broom Corn Trade Directory and Growers' Guide. Published by A. B. Katkamier, Farmington, N. Y.

Southern Wealth, Richmond, Va., South Atlantic Life Insurance Co. The latest stride in Southern development.

The Newton Horse Remedy Co., Toledo, O., sends us a small pamphlet on "Horse Troubles," for which Newton's Heave, Cough, Distemper, and Indigestion Cure is valuable. See their adv. in this issue. They have strong testimonials favoring the remedy from well-known Virginia horsemen.

The Page Woven Wire Fence Co. now issues the Page Fence Age, instead of the Coil Spring Hustler, in the interest of their well-known and reliable fence.

The Aultman-Taylor Co., Mansfield, O., issue a paper "The Starved Rooster," in the interest of their well-known threshing machinery, which will be found advertised in this issue.

The Agricultural and Live Stock Department of the Pan American Exposition of 1901, to be held at Buffalo, New York, has been installed, and any information desired will be gladly supplied on application to the Supt. of Live Stock and Agriculture, Ellicott Square, Buffalo, N. Y.

OUR GROWTH IN POPULATION.

WE HAVE AS MANY PEOPLE AS LIVE IN GREAT BRITAIN AND FRANCE COMBINED.

There were but 5,300,000 people in America when this century opened. France had five times as many people; Germany, and even Austria, had four times America's population; Italy had three times as many, and so had Great Britain. Even Spain had double our number of people, and little Portugal was almost our rival in numbers. We have more people now than any European nation except Russia, which alone leads us. We have as many people as live in all Great Britain and France combined. We have one-half more people than Germany. We have, practically, 75,000,000 people in the United States, and 10,000,000 more in our new possessions.—May *Ladies' Home Journal.*

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Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one-half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

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WALTER WATSON.

SWIFT CREEK STOCK AND DAIRY FARM.



150 YOUNG THOROUGHBRED
JERSEY HEIFERS
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FOR SALE AT HARD PAN PRICES.

Blood of the famous Stoke Pogis, St. Lambert and Coomassie blended. Paying special attention to breeding my cattle, I have reached a degree of excellence not surpassed by any herd in the State. POLAND-CHINA Pigs always on hand. Write for what you want.

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ROCK HILL FARM.
Shorthorns,
Shropshire Sheep
..AND..
Poland-Chinas

A Few Choice Gilts Unbred..

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BERKSHIRES I have for sale some extra fine 8 weeks old BERKSHIRE BOAR PIGS, by "BILTMORE BOY," son of the unbeaten "KING LONGFELLOW," and out of extra good sows. Entitled to registry in Am. Berk. Assn.

R. S. CAMERON,
WAVE VIEW FARM, GLOUCESTER, VA.

POLAND-CHINA PIGS
FOR SALE
From Registered Sire and Dam; also a few Boars ready for service. J. J. GILLIAM, Travis, Va.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

ASA B. GARDINER, Jr., Manager,
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The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.

We mail a little "Book of the Herd" on request.

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Breeders ..of.. **Shorthorn Cattle and Shropshire Sheep.**
...CORRESPONDENCE SOLICITED

ELLERSLIE FARM
Thoroughbred Horses
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Pure Southdown Sheep and Berkshire Pigs.
FOR SALE. R. J. HANCOCK,
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SHORTHORNS FOR SALE A choice lot of bull calves from a large and splendid herd of cows and the best Scotch bulls—one of them for sale.
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I desire to stock a small place. I have been in the piano and music business for 35 years, and would like to exchange entire or in part pianos or organs for stock required on a farm. I guarantee honorable dealing, cash prices and perfect satisfaction, and expect the same in return. Address—
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JACKS, JENNETS and PONIES. Fine JACKS a specialty. Enclose stamp for new catalogue.
W. E. KNIGHT & CO.
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RICHMOND PRICES—APRIL 19, 1900.

J. F. Jacob & Co., Commission Merchants

COMMENTS FOR THE WEEK.

Tobacco—Dark—Market continues steady at quotations; receipts and offerings very light. Sun-Cured—Receipts and offerings continue light, but as the season is more favorable we look for an increase; market about steady. Brights—Steady at unchanged quotations.

Wheat—Market continues very active with light receipts.

Corn—Dull at the decline.

Oats—Steady at quotations.

Hay—With very light receipts, quotations are easily obtained; all good grades active.

Flour—Continues very dull.

Rye—Quiet.

Eggs—While receipts are light, the market is quiet.

Butter—Receipts continue light, but the market is again lower.

Poultry—Dressed, season over, and we omit quotations. Live very active.

Virginia Bacon—Dull.

Potatoes—White stock active at quotations; Rose dull.

Onions—Receipts heavy; market dull.

Apples—Market continues steady; receipts moderate.

Hides—Market about steady; light receipts.

Sun-Cured Tobacco—New.
Lugs, common, 1.50 to 2.50.
Short Leaf, 3.50 to 4.50.
Long Leaf, 5 00 to 6.50.
Wrappers, 8.00 to 12.00.

Bright Tobaccos.
Smokers—Common, 6 00 to 8.00.
Cutters—Medium, 13.00 to 15.00.
Fillers—Medium, 5.50 to 7.00.
Wrappers—Medium, 12 00 to 15.00.

Dark Tobacco—New
Lugs, inferior to good, 1.75 to 2.50.
Medium Leaf, 5.00 to 7.00.

Wheat—No. 2 Red, 77.
Bag lots, 70 to 76.

Corn—No. 2 White, 46½.
No. 2 Mixed, 46.
White Corn, Va., bag lots, 46 to 47.

Oats—Winter Seed Oats, nominal.

Hay—No. 1 Timothy, 17.50 to 18.00.
No 1 Clover, mixed, 17.00.
No. 1 Clover, 15 50 to 16.00.
Virginia Timothy, No. 1, 16.50 to 17.00.
Virginia, mixed, 15.00 to 16.00.
Clover, Virginia, nominal.
Shucks—baled, 11.00
Straw—Compressed, 8.50 to 9.00.

Flour—Mill Offal—Bulk: Shipstuff per ton, 17.00
Bran, 16.50.

Poultry—Chickens, live, per lb., fall, 15 to 20.
Chickens, per lb., spring, 23 to 30.
Hens, per lb., live, 9 to 10.
Ducks, per lb., live, 10 to 11.
Roosters, per piece, old, live, 20 to 25.
Geese, per piece, 35 to 50.

Fruits and Vegetables—
Oranges—California seedlings, per box, 2.50 to 3.00.
Potatoes—Rose, per bushel, 55 to 60.
Onions—Per barrel, 1.75 to 2 25.
Cabbage—Florida, per bbl., 2.50 to 3.25.

OLD DOMINION POULTRY PLANT.

Editor Southern Planter:

Through our card in your valuable journal we not only sold all the stock we could spare in January, but the demand far exceeded the supply. Kindly say to your readers that we have never had eggs to hatch better than during the present season, and will have a large stock ready for early fall delivery. Orders will be booked now when accompanied by one-half cash. Prices a matter of correspondence.

J. H. SLEDD,
Negro Arm, Va.

Essex Pigs and Southdown Sheep  If you wish to purchase Essex Pigs and Southdown Sheep thoroughly acclimated and eligible to registry, address L. G. JONES, Bethania, N. C.
Also Half Dorset Lambs for sale.

We Bind...
Your Magazines, Southern Planters, or any other books
PRICES LOW.
Satisfactory work guaranteed.
Job Printing Neatly Executed.
S. B. ADKINS & CO.,
RICHMOND, VA.

FARMERS' LIBRARY!

SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
FERTILITY OF THE LAND,	$1.25
FEEDS AND FEEDING, -	$2.00
TOBACCO: How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

CHICKENS AND EGGS



Are the most profitable sources of revenue on the farm. Like other things, it requires much time and attention to be a successful poultry raiser, while the necessary requisites are being constantly added in order to accomplish the desired end. Among the greatest hindrances may be mentioned the various diseases peculiar to fowls, such as CHOLERA and GAPES, which can not only be speedily and permanently eradicated, but their appearance again prevented by the occasional use of **POLK MILLER'S**

"VICTORY" POULTRY FOOD

An excellent preparation, indispensable to every poultry raiser. It is not a food as its name implies, but a scientifically PREPARED MEDICINE (put up in handsome tin boxes) a given quantity of which is to be mixed with the usual quantity of food. For sale by all DRUG and COUNTRY STORES. If your merchant hasn't it in stock, get him to get it for you.

PRICE, 25c. per Package; By mail, 35c.

MANUFACTURED BY

POLK MILLER DRUG CO.,

RICHMOND, VA.



SALE OF STOCK AT "HILL TOP."

We invite especial attention to the advertisement of H. A. S. Hamilton & Co., Staunton, Va. This firm is now selling its entire stock of Jerseys, Southdowns, Shropshires, Berkshires and Poland Chinas. They will sell privately until July 24th, when they will offer all stock then unsold at public auction. Messrs. Hamilton & Co. are well and favorably known to scores of our readers. The stock from "Hill Top" has always been regarded as the best. Write for prices, or go to Staunton and pick out some bargains

WHERE STONEWALL DIED.

When Dr. Hunter McGuire was stricken with his present illness he was taking extraordinary interest in the scheme for raising a fund to buy the house at Guinea's Station in which Stonewall Jackson died.

That house—once the property of the Chandlers—is now occupied by a negro as a tenant. Its yard is neglected and the window-panes are stuffed with rags; desolation reigns all about; that, too, though the homestead is in plain sight of the numerous passenger trains of the Richmond, Fredericksburg and Potomac railroad

Largely through the effort of Dr. McGuire the Stonewall Jackson Memorial Association was organized and acquired an option to buy the property at $5.000. The option includes the dwelling and 160 acres of land. The land, we are informed, is of good quality and has been well kept up

It is the design of the Association to raise $10,000, one half of which will be used as purchase money and the other as a fund to keep the property in good repair and under proper supervision. A part of the permanent fund may be obtained by disposing of some portion of the farm.

No commissions, or profits of any kind, will go to any one connected with the Association; none of the officials or agents will receive any compensation whatsoever for their services.

The plan of the Executive Committee to secure contributions to the fund is to get one dollar, or more, from each Confederate soldier or descendant of such soldier. Along with the subscriptions, the committee will gather data of the record of the subscriber, or his or her father, which will be carefully enrolled, indexed and preserved in the Chandler House.

The Association is operating under a charter granted by the Virginia Legislature, and its actual work has been placed in the hands of J. T. McAllister, of Hot Springs, Va., as its Secretary, and E. D. Hotchkiss, of this city, as its Treasurer. To the latter, all checks should be made [illegible].

There were only five large cities in America in 1800. Philadelphia, with 66,000, was the largest, the seat of government and the centre of wealth and culture. New York was next, with 60,000 Baltimore was third, with 26,500; Boston fourth, with 25,000, and Charleston, South Carolina, fifth, with 19,000 people.—May *Ladies' Home Journal.*

Sunny Bank Poultry Ranch

Barred Plymouth Rocks,

..EXCLUSIVELY..

Nothing in our yards but the **purest strains extant,** viz.: Thompson, Bradley Bros. and Miles. We are now booking orders for EGGS for hatching, 15 for $1.00; 100 for $5.00 **We pay express charges** on all orders amounting to $3 or ever,

OUR GUARANTEE IS THIS: Any one failing to get ten chicks from a sitting of our eggs we will furnish an extra sitting at half price.

REMEMBER, you can order now, and have your eggs shipped any time during hatching season. Eggs are carefully selected, packed and shipped in the latest patent box, made especially for the purpose.



SIR WALTER.

GARNETT BROS., Mitchells, Va.



LAYERS and BROILERS.

Professional Poultrymen now call for a strain of **B. Plymouth Rocks BRED** for this purpose. We have supplied such for several years. And they know. See? It costs little to try at $1 00 per setting for eggs; $1.00 up for stock. Staying behind may cost more. Interesting illustrated catalogue free. Fine references. Address

CEO. HARRISON MORRIS,
ASHLAND, VIRGINIA.

FOR SALE

Highlands Stock and Poultry Farm ....



at a very low price and on good terms.
Choice **SHROPSHIRE SHEEP** and **Lambs.**
The best **POLAND-CHINA, BERKSHIRE** and **CHESTER PIGS.**
Can furnish extra fine **DURHAM** and **JERSEY CATTLE** at farmer's prices.
EGGS, B. P. Rock and Silver Wyandotte.

If you want a good home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

.. BACON HALL FARM ..

HEREFORD CATTLE—Winners at ten fairs 1899.
DORSET SHEEP—Bred ewes and fall lambs.
BERKSHIRES—Only pigs at present.

SATISFACTION ALWAYS OR NO SALE.

E. M. GILLET, Verona, Baltimore Co., Md.

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

CURIOUS TREES.

The bread fruit tree of Ceylon is very remarkable. Its fruit is baked and eaten as we eat bread, and is equally good and nutritious. In Barbutu, South America, is a tree which, by piercing the trunk, produces milk, with which the inhabitants feed their children. In the interior of Africa is a tree which produces excellent butter. It resembles the American oak, and its fruit, from which the butter is prepared, is not unlike the olive. Park, the great traveller, declared that the butter surpassed any made in England from cow's milk. At Sierra Leone is the cream fruit tree, the fruit of which is quite agreeable. At Table Bay, near the Cape of Good Hope, is a small tree, the berries of which make excellent candles. It is also found in the Azores. The vegetable tallow tree also grows in Sumatra, in Algeria, and in China. In the Island of Chusan large quantities of oil and tallow are extracted from its fruit, which is gathered in November or December, when the tree has lost all its leaves. The bark of a tree in China produces a beautiful soap. Trees of the sapindus or soap berry order also grow in the north of Africa. They are amazingly prolific, and their fruit contains about 38 per cent. of saponin.

BEWARE.

Attention is called to those essentially feminine habits of putting pins in the mouth or moistening a pencil with the lips. A pin swallowed means only a surgical case, but the greater danger lies in the contagion that may be lurking in the pin itself. Under the head of the pin, or in the point of the pencil, all kinds of malignant germs may be located, which will be transmitted by the mouth quicker than any other way. It hardly seems possible that any one needs to be cautioned against holding money between his lips, yet a person can scarcely go any distance on a street car without noticing some one indulging in this dangerous and filthy habit.

C. C. Taliaferro,
NASONS,
VA.

"MOUNT SHARON" STOCK FARM.
Red and Grade HEREFORD CATTLE
Registered SHROPSHIRE SHEEP
BRONZE TURKEYS and MUSCOVY DUCKS
Registered POLAND-CHINA PIGS.





NOW OFFERS FOR SALE:

HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

POLAND-CHINA HOGS.—Pigs, six weeks old, $4 50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

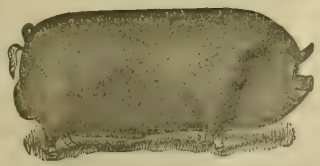
MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.

A Union of England and America

THE MUCH MOOTED QUESTION SETTLED.



N. BENJAFIELD, at Motcombe, Shaftesbury, England, and THOS. S. WHITE, of Lexington, Va., can explain this Union. N. Benjafield stands at the top for thoroughbred English Berkshires in his country, and as Thos. S. White got his start from said Benjafield, then, of course, the said White has the best blood in America. Fancy Pigs, but not fancy prices, now before the puplic.

Write to **THOS. S. WHITE, Lexington, Va.**

41 Pigs now Ready for Shipment, Some Ready for Service; Boars and Sows.

IMPARTING TO OTHERS.

MARY W. EARLY, Lynchburg Va.

When we have any surplus article on hand, no better rule for our conduct can be given than that contained in the words of John the Baptist, "Let him that hath two coats impart unto him that hath none." Instead of banishing second-hand or disused articles to "the unfruitful repose of the garret, let us diffuse them amongst persons more needy than ourselves. I have seen women who could not make up their minds to give, but who went through life with closets and garret crammed with useless and obsolete articles which had to be burned up, if they moved, or when they died. On the other hand, I have seen great good done by a judicious system of diffusion. A striking instance of this rises to my mind in the case of a lady who makes it a rule to lay up nothing but what she needs in the present or near future. Every season she takes a careful inventory of her wardrobe and other "stock," gleans out of it everything she can spare and gives it to others less favored in worldly circumstances than herself. She divides these articles into two lots, one for the poor, the other for the poorest. The first lot is for a family of relatives living in the country, poor, but of genteel birth and raising. For the mother she will put in a cashmere dress she wore the previous season, adding fresh facing, dress braid and buttons. For the daughters who are clever with their needles she will put in various articles of dress which, though they might look a little passé in the city, look extremely nice in the country, wiped over and remodelled by tasteful, careful hands.

This lady will not allow periodicals to accumulate in great dusty stacks in her garret, but diffuses them wherever she thinks they can confer benefit or enjoyment. She sends them to hospitals, for instance, for the convalescent patients, or she will give a package of them to her seamstress when the latter goes home at night, thereby affording her an opportunity for culture or recreation when leisure permits. Many persons who have the endowments of education and some little taste for reading, but too little means to purchase books or periodicals for themselves, might be encouraged to read, if more persons followed this benevolent lady's rule and disseminated their old periodicals instead of leaving them covered with dust and cobwebs in the garret.

You may look all through this lady's house, and with the exception of a few cherished mementoes of the past, you will find no accumulation of old things. If she were to break up housekeeping tomorrow after she had sent off the really desirable and serviceable household belongings, there would scarcely be a chestfull of rubbish in her establishment, for things not essential to her household uses were never suffered to accumulate there. She would always say "there is some one who needs these things," and would set to work to find out who it was, and to pass on to that person the things superfluous to herself. For instance, if she had a chair or other article of furniture somewhat damaged, unless she intended

BILTMORE FARMS,
BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

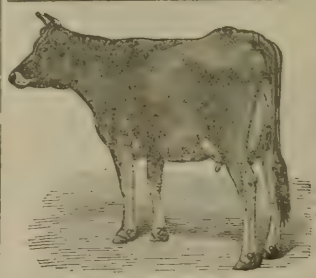
The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO GEO. F. WESTON, SUPT.



JERSEYS FOR SALE

Some choice young COWS and HEIFERS, sired by the great St Lambert bull,

ETHEL'S JOHN BULL No. 29005 whose dam, Ethel of Shelburne, granddam Crocus of St. Lambert, and her full sister, the great Mary Anne of St. Lambert, have an average butter record of 22 lbs. and 7 ounces in 7 days.

Also some extra fine BULL CALVES out of high testing daughters of the above bull, and sired by our grand young bull,

ADMIRAL ST. LAMBERT No. 51338 whose dam, Flower of Meridale, has a butter record of 26 lbs., 11½ oz., in 7 days, and a daily milk record of 53 lbs., 8 oz.

We have also for sale some fine cockerels and pullets of Indian Game, Barred P. Rock and White Wyandotte fowls.

BOWMONT FARMS, SALEM, VA.



SOUTHSIDE STOCK STUD,

ON ROANOKE RIVER, IN MECKLENBURG CO.

Trotting Horses, Red Polled Cattle, Dorset Horned, Shropshire and Hampshiredown Sheep, Berkshire Hogs, Pedigree Llewellyn Setters and Scotch Collie Dogs.

All Stock Thoroughbred and Registered.

GEO. B. FINCH, Prop., Boydton, Va.

Pure-Bred English Berkshires



Swine of the finest breeding and individuality. Young stock of both sexes and all ages for sale. A trial order will convince you my Berkshires are all right. Pedigree in full with every pig sold.

M. A. GRIFFIN,

Richardson Creek, Union Co., N. C.

to have it repaired in the near future for her own use, she would give it to some woman whose husband or son was a mechanic or had a handy turn about mending things, and it would soon be in use, instead of taking its place in the dim, dusty garret to remain for an indefinite number of years.

It is highly desirable to train our children to impart to others, as it is a fundamental law of heavenly life to seek to impart every joy and blessing to others. We chill and narrow our child's nature by permitting him to hoard up a large store of playthings, forgetful of other little ones not so favored. At certain stated times, Christmas and Easter for example (though we need not limit ourselves to these occasions), let us make our children look over their little possessions (whilst we do the same with our own) and separate a part of them to give to other children not so well off. We should not only arouse *the sentiment* of compassion in our children's breast, but we should train them early to embody this sentiment in a practical form by giving and doing all in their power for the good and relief of others.

We have spoken above of giving such things as we already have on hand for the reason that this kind of giving is more within the reach of the majority of persons than the bestowal of fresh gifts, but those who are able to give in both ways are highly privileged. When we freely and lovingly give to others we are developing within us the image and likeness of God, the great Giver,—the Father of lights, from whom cometh every good and perfect gift.

Let us not be so anxious about our supplies for to-morrow and for next year. Trust God for the future. Remember the lesson of the Manna, and tremble lest things hoarded up through mere parsimony and selfishness should breed spiritual putrescence.

"There is no little enemy." Little impurities in the blood are sources of great danger, and should be expelled by Hood's Sarsaparilla.

HOW CRIPPLE CREEK GOT ITS NAME.

It was the cattle men who gave it the name which now figures in the stock quotations. There are a dozen traditions, but the best authenticated is the story of a cowboy whose bronco balked at the jumping of a rivulet; balked and stumbled and fell, breaking a leg for itself and one for its rider. There was no surgeon nearer than Colorado Springs; and the rough, anatomical carpentry of his mates made a cripple for life of the unlucky range-rider. Wherefore he named the rivulet Cripple Creek, and the rivulet has named the region.—From "Cripple Creek," by FRANCIS LYNDE, in the May *Scribner's*.

Sitting down or lying down is not necessarily resting. You must learn the secret of relaxing, letting go, removing all tension. Do not wait until you become tired, but snatch a moment here and there, and then just let yourself rest.—May *Ladies' Home Journal*.

Do You Need A CREAM SEPARATOR?



A DE LAVAL "BABY" SEPARATOR would effect an astonishing saving in your dairy work and in the net dollars-and-cents results from it. It would improve quality and save a lb. of butter per cow every week. Can you afford to let the waste go on another season? Why not stop it now? Why not have the agent in your territory bring you a machine and demonstrate the plain facts to you—so plain that you can't longer evade them? We will be glad to do it without any advance promise on your part—knowing that there can be but one result. This will cost you nothing and may profit you much.

Send us your name and address.

THE DE LAVAL SEPARATOR CO.

RANDOLPH & CANAL STS., CHICAGO
103 & 105 MISSION ST., SAN FRANCISCO.
General Offices: 74 CORTLANDT STREET, NEW YORK.
1102 ARCH STREET, PHILADELPHIA.
327 COMMISSIONERS ST., MONTREAL.

BARGAINS IN STOCK

ALL THE PURE-BRED LIVE-STOCK at "Hill Top" FOR SALE.

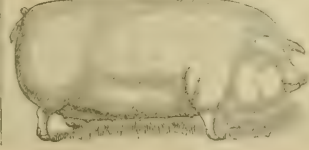
We will sell privately until July 24th, when we sell at Public Sale all of our **Jersey Cattle, Southdown and Shropshire Sheep and Berkshire and Poland-China Hogs**. For over 16 years "Hill Top" has been noted for its splendid stock of the above breeds, and has always been in the lead at Fairs and Live-Stock Shows wherever exhibited.

Many of our animals have ranked with the first of their breed in the Country.

If you want the BEST BLOOD to start a herd of Jerseys, Southdowns, Shropshires, Berkshires or Poland-Chinas, "Hill Top" offers you a rare chance to obtain same. All stock in excellent condition.

Parties desiring to inspect stock, will be met with conveyance at Staunton on short notice. Inquiries promptly answered. Terms of Public Sale will be announced later.

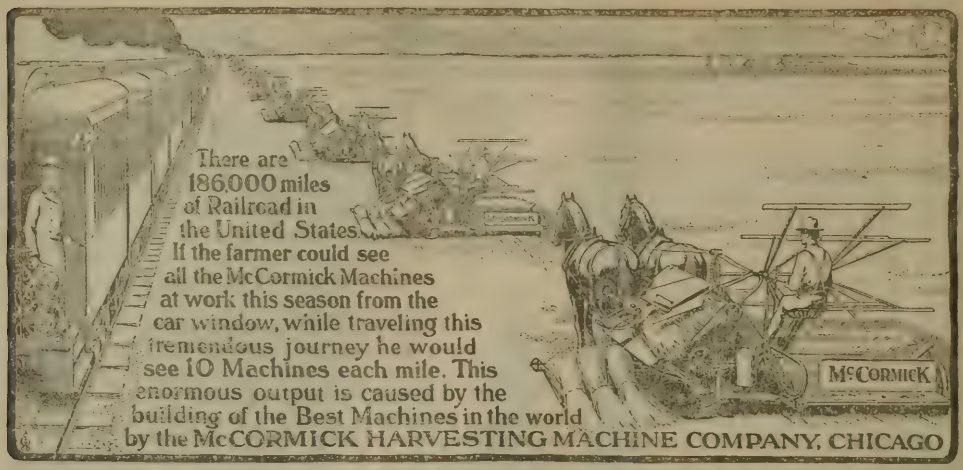
S. BROWN ALLEN, Proprietor.
H. A. S. HAMILTON, Manager,
Address **H. A. S. HAMILTON & CO.,**
STAUNTON, VIRGINIA.



PLEASANT VIEW HERD OF
IMPROVED REGISTERED **CHESTER WHITE SWINE.**

Both Pig and Q strains. Can furnish pairs and trios not related. If you are interested in fine swine write me.

ARCHIE C. ROPER,
References: 212 Lock Box, CHARLESTOWN, W. VA.
Bank of Charlestown, First National Bank, Southern Express Agt., U. S. Exp. Agt.



EAST TENNESSEE FARMERS' CONVENTION.

The East Tennessee Farmers' Convention will meet at the University of Tennessee, Knoxville, May 22d and 23d. A very fine programme has been prepared for this meeting. Several speakers of national reputation will be present. Among these are Hon. John Hyde, chief statistician, Washington, D. C.; Hon. Thos. H. Paine, Commissioner of Agriculture for Tennessee; Judge H B. Lindsay, Knoxville; Col. W. R. Rankin, Jasper; Mr. W. Gettys, Athens; Mr. Paul F. Kefauver, Madisonville. Addresses will be delivered by several of the University specialists on the work of the Experiment Station. The railroads have offered a fare and a third rate for the meeting.

THE MISSIONARY'S BRONCOS.

It Took Two Men with a Stout Rope to Get Them Started.

"I knew a missionary party in the West who had a pair of broncos, one of which could only be started in one way; the other, of course, was in entire sympathy with and regulated his movements by his companion," writes Rev. Cyrus Townsend Brady in the May *Ladies' Home Journal*. "Two disinterested people who were not going with the party would pass the bight of a stout rope around the hind fetlocks of the recalcitrant animal, and each take an end and saw away until you could almost smell the burning hair, when, without one word of warning, the beasts would bolt, and from that time would go all day cheerfully at the liveliest kind of a trot, provided they were not halted for anything. If they were stopped the same process would have to be gone over with again. Moral suasion was absolutely and entirely lost on those broncos, yet you could not help liking them, they were so mean they were actually charming."

"PASTEUR" BLACK LEG VACCINE,

The original and genuine preventive vaccine remedy for blackleg. Officially endorsed in all the cattle raising States. Successfully used upon 1,500,000 head in the U. S. A. during the last 4 years. Write for official endorsements and testimonials from the largest and most prominent stockraisers of the country. "Single" treatment vaccine for ordinary stock; "Double" treatment vaccine for choice herds,

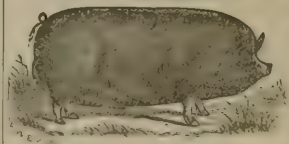
Registered "BLACKLEGINE" Trade Mark.

"PASTEUR" single treatment Blackleg Vaccine READY FOR USE (no set of instruments required). No. 1 (about 10 head), $1.50; No 2 (about 20 head), $2.50; No. 3 (about 50 head) $6. Easily applied. No experience necessary.

PASTEUR VACCINE CO., 712 GARDEN CITY BLOCK, CHICAGO, ILL.

Registered Berkshires

"MAYOR OF BILTMORE" at Head of My Herd.



Write for my prices on pigs before purchasing elsewhere. I can furnish you the **finest** stock at reasonable prices.

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.
Correspondence solicited,

Southern and N. & W. Rys. T. O. SANDY, Burkeville, Va.

DRAIN YOUR LAND and use AGRICULTURAL LIME. You will double your crops. We sell all sizes

Farm Drain Tile,

TERRA COTTA PIPE. LIME, CEMENT, PLASTER, FIRE-BRICKS, &c.

Write for prices. WARNER MOORE & CO., Richmond, Va.

THE IMPLEMENT CO.

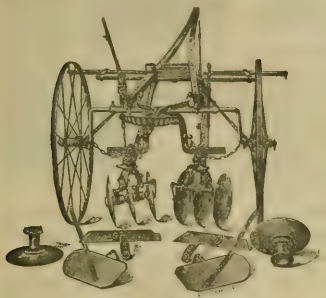
RICHMOND, VA.

CANTON DISC CULTIVATOR

WITH LEVER AND HARROW ATTACHMENT.

This is a grand labor saving implement. The gangs are constructed so that extra discs can be added on either side, making it practically a Disc Harrow. It is adjustable for all kinds of work, and will throw dirt to or from corn. The gangs can be raised high in the center for cultivating listed corn, or reversed for the purpose of hilling up corn.





Canton Disc Cultivator.

Five-tooth Iron Age Cultivators and other kinds. Cutaway and Solid Disc Harrows.

Hallock Weeder

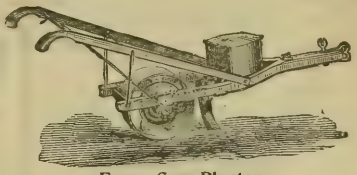
Is fine for cultivating and destroying weeds when the crop is young, and for covering grass seeds.

WE ARE AGENTS FOR..

Evans Celebrated Corn Planters,

With or without Fertilizer attachment. Can be adjusted to plant corn at any distance, likewise can furnish plates so that it will plant Peanuts, Beans, Peans, etc. A special lot of the best HAND CORN PLANTERS, $1.00 each.

We have STANDARD Corn and Cotton Planters.



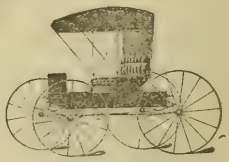
Evans Corn Planter.



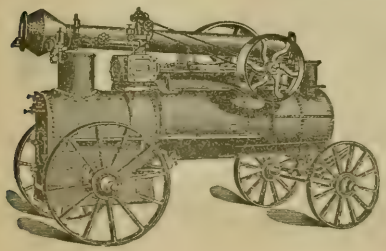
Hallock Weeder.

We have a large grand stock of **BUGGIES.** Special catalogue sent on application.

CAPITAL, BUCKEYE and LOG WAGONS, warranted.



We are overstocked with **BISSELL CHILLED PLOWS.** To reduce our stock, we will sell our surplus at 25 per cent below their value. DIXIE, FARMER'S FRIEND, IMPERIAL and other plows and repairs.



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We have an immense stock of

HARNESS,

and all kinds of AGRICULTURAL IMPLEMENTS.

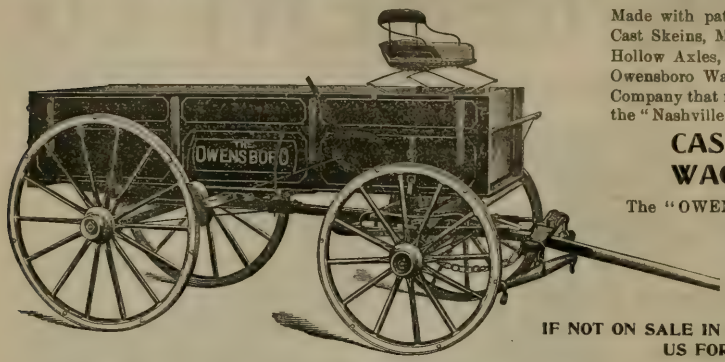


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THE IMPLEMENT CO.,

1302-1304 E. Main Street, RICHMOND, VA.

IF YOU WANT THE **BEST WAGON** ON THE MARKET ..BUY THE.. **"OWENSBORO,"**



Made with patent Sand Arrester, Self-Oiling Cast Skeins, Malleable Skeins, Solid Steel or Hollow Axles, with high or low wheels. The Owensboro Wagon Co. was the only Wagon Company that received a diploma and medal at the "Nashville Exposition" on

CAST SKEIN FARM WAGONS.

The "OWENSBORO" for fifteen years has stood every test, filled every requirement, and in the face of the most earnest efforts of all other wagon makers to equal it, it stands without a rival.

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OWENSBORO WAGON CO., OWENSBORO, KY.

AN APRON WORTH $50,000.

WORKED BY MARY, QUEEN OF SCOTT, WHILE AWAITING HER DOOM AT THE BLOCK.

There has recently come to light an apron—probably the most exquisite example of needlework extant—that busied the fingers of the hapless Mary, Queen of Scots, during her long imprisonment, and served to divert her mind from her impending doom at the block. The fallen sovereign—all hope gone—centred her interest upon it during the latter part of her long confinement, and created the masterpiece of needlework. Just before her execution she secreted her prized apron under the lining of one of her robes which kept her treasure safe until recently the garment was ripped apart. Its history has since been fully authenticated through letters written by the ill-starred Queen to a friendly ambassador at Parie, who smuggled the materials out of which it was wrought into her dungeon. By strange chance the apron came into the possession of an American, who has refused $50,000 for it, and has also declined $5,000 for the privilege of unraveling a single stitch to learn its secret, which is a mystery of all the experts. Its owner has consented, however, to its reproduction in large size in the June *Ladies' Home Journal.*

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Of valor is discretion," and the better part of the treatment of disease is prevention. Disease originates in impurities in the blood. Hood's Sarsaparilla purifies the blood. People who take it at this season say they are kept healthy the year round. It is because this medicine expels impurities and makes the blood rich and health-giving.

All liver ills are cured by Hood's Pills. 25 cents.

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Mr. W. G. Thomas, Louisburg, N. C., advertises stock and eggs of above breed.

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At Less Than Wholesale Prices.



When you buy any of these things you want to feel assured of several facts. First, that **you are getting the best procurable quality.** Then, that **the style and finish are modern and up-to-date,** but above all that **the prices are right.** We are in a position to

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Indeed, we are so firmly convinced of this fact that we will ship our goods anywhere, **subject to the most rigid inspection of the buyer.** If not found exactly as represented and entirely satisfactory, **goods may be returned at our expense.** We offer you large selection, many styles of vehicles and many styles of finish. **Write today for free illustrated catalogue.**

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No. 21—Driving Wagon. Has "Long Distance" axles, open rubber head springs, Bradley shaft couplers and Bailey loops. Price with shafts, $60. Same as others sell for $40 to $50 more than our price.

You Pay Double the Money

in many cases when you buy vehicles and harness from the agent or dealer. We do without these people and reduce the price of our goods to you to the extent of their commissions. We make 178 styles of vehicles and 65 styles of harness and sell them to the consumer direct from our factory at wholesale prices.

WE HAVE NO AGENTS

You pay a profit to nobody except our manufacturing profit, and you get positively the best goods which a given amount of money will buy. In a factory of the size of ours **you get the best possible selection.** Our large illustrated Catalogue contains cuts of everything we make. Remember that we ship our vehicles and harness anywhere for examination and guarantee safe delivery and warrant everything.



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SEND FOR LARGE FREE ILLUSTRATED CATALOGUE.

ELKHART CARRIAGE & HARNESS MANUFACTURING CO., Elkhart, Indiana.

KEYSTONE QUICK HAY MAKERS. KEYSTONE MFG CO STERLING ILL

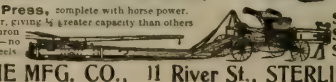


KEYSTONE Side-Delivery Rake tosses the hay into a light, airy, continuous winrow to cure without bleaching. Hastens curing—saves use of tedder—gathers no trash—**Makes A. 1 hay.** Rakes wide, fast, clean. No dumping—any boy can use it. Simple—Strong. Follows mower closest. Leaves hay best shape for loader. —Successful.

KEYSTONE Hay Loader. Attached to rear of wagon, runs light, requires no extra horses. It loads a wagon in five to ten minutes from winrows or cock. **Gets all the hay without any trash.** Does not thrash off leaves. Saves time and labor when both mean money.



KEYSTONE Three Feed Hay Press, complete with horse power. Has three feeds to every round of the power, giving ½ greater capacity than others with same power and help. Steel and iron throughout—no cog wheels on horse power—no release jerk to sweeps—press always on wheels.



Simplest. Strongest. Speediest

Write for full descriptions to KEYSTONE MFG. CO., 11 River St., STERLING, ILL.

THE GREAT WALTER A. WOOD



STEEL MOWER.

Mowers, Reapers, Binders and Hay Rakes

The Standard of Excellence the World Over.

They travel in buggies; blow loud horns; display fancy pictures; kick up dust all along the road to call attention to other machines; but here are the **OLD RELIABLES,** with all the latest improvements that keep ahead **on their merits.**

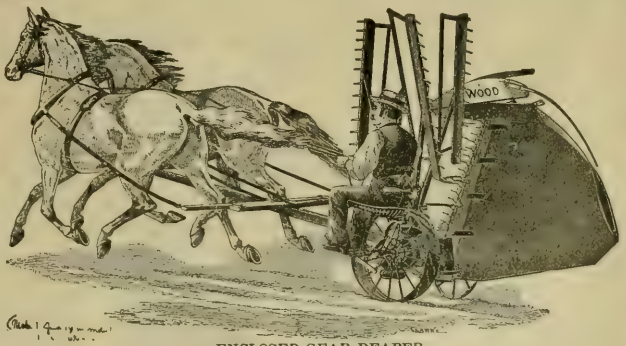
You cannot begin to know how much better these machines are than any others, unless you see them, or drop us a postal to send you a full catalogue which will show their grand points.

Known the world over, cost lest to keep in repair than any others. Made of the very best material. Southern warehouse and office at Richmond, Va., where any part of any machine may be had in a minute.

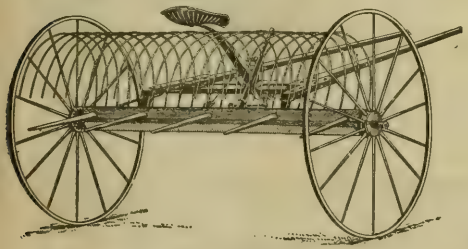
Don't be talked into considering any other but WALTER A. WOOD MACHINES. Set them by the side of any other and see the difference.

THE OLD RELIABLE, STANDARD OF EXCELLENCE.

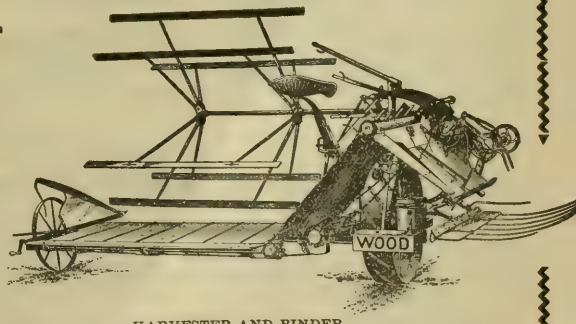
SEE HOW HIGH THE TEETH TO THIS RAKE LIFT SO AS TO CLEAR THE HAY EVERY TIME.



ENCLOSED GEAR REAPER.



HAY RAKE.



HARVESTER AND BINDER.

WRITE FOR SPECIAL CATALOGUE.

ASHTON STARKE, RICHMOND, VA.

RECKLESS EXPENDITURE OF PUBLIC MONEY.

The reckless expenditure of public money in the United States has not been confined to any particular political division nor to any particular geographical section. The national, State, and municipal governments have seemed to vie with one another in the plunder of the tax-payer. From the North, the South, the East, and the West, have come the same complaints of excessive burdens. But figures are needed to give these statements the vividness of reality. Beginning with national expenditures, Mr. Roberts says that during the decade from 1820 to 1830 they were $1.07 per capita; from 1851 to 1861, they were $2.06; and for the year 1894, $6.08. "In a word," he adds, "the per capita expense of the national government in 1894 was nearly six times as great as it was in 1820, and nearly three times as great as it was in the decade before our great civil war." The per capita expenditures of the State of New York in 1830 were $1.30, thirty years later they were $1.89, in 1890 they were $2.15, and "in 1897 the estimated per capita expenditure reached the alarming amount of $4.95." That is to say, the combined expenditures of the State and national governments gave a rate as high as that prevailing in France before the outbreak of the Revolution. "The tendency to increase," says Mr. Roberts, commenting on these figures, "is a persistent one. In 1881 the amount expended by the State was $9,878,214 59; in 1884, $10,479,517 31; in 1887, $14,301,102.48; in 1890, $15,076,881.86; in 1893, $17,367,335.98; and in 1896, $20,020,022.47."

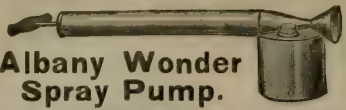
Coming to municipal expenditures, where the hand of the prodigal has been most lavish, Mr. Roberts says that "between 1860 and 1880 the municipal debts of our Union increased from $100,000,000 to $682,000,000, and in fifteen cities, believed to represent the average, the increase in taxation was 362.2 per cent., while the increase in taxable valuation was but 156.9 per cent., and of population but 70 per cent. In the year 1860, the direct taxes for State, county, town, and city purposes, in New York, were $4 90 per capita, in 1880 it was $8 20, and in 1896 it had reached $10.43, an increase in thirty-six years of 213 per cent."—From a State Official on Excessive Taxation by FRANKLIN SMITH, in *Appleton's Popular Science Monthly for April.*

KANSAS CORN FOR STARVING INDIA.

The people of Kansas have inaugurated a movement for securing funds wherewith to send 1,000,000 bushels of Kansas corn, or its equivalent, to the famine stricken people of India. Gov. Stanley is chairman of the committee having this work in charge. Its secretary and business agent is T. J. Anderson, and the treasurer F. D. Coburn, Secretary of the State Board of Agriculture.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

$3 TO $5 A DAY EASILY MADE.



Albany Wonder Spray Pump.

Will spray thoroughly 1,000 potato vines without refilling. Cylinder 18 in. long, 1¾ in. diameter; tank holds 1 quart. In 1895 we sold 1,000 pumps; in 1899 we sold 50,000. For the next 10 days we will send you a pump for 50c.; all brass pump for $1. One agent sold 1,000 pumps in one county last season. Send for Circular A, Spray Pumps; B, Hot-Air Stoves; C, Feed Cookers; D, Steel-Plate Ranges. ALL FREE.

GRANITE STATE EVAPORATOR CO., Box 153, Albany, N. Y.

SLUG SHOT **KILLS INSECTS in the Garden, Etc.**

In use since 1880. Is effective and safe to use. **Sold by Seedsmen Everywhere.** Send for Free Booklet on Bugs and Blights to

B. HAMMOND, Fiskill-on-Hudson, N.Y.



Pat. March 10 and Nov. 9, 1897.
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BUG DEATH

is the leading Insecticide of the day. It is NON-POISONOUS, and is endorsed by the prominent seedsmen of the East. SAMPLE FREE.

PRICE-LIST.

1-pound package..... 15c. 3-pound package..... 35c.
5-pound package..... 50c. 12-pound package..... $1.00
Perfection Shaker..... 65c.

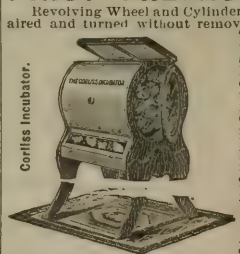
FOR SALE BY ALL FIRST-CLASS SEED HOUSES.

Warehouses in all large cities. If your dealer don't handle these goods, ask him to do so, or write us.

DANFORTH CHEMICAL CO.,
104 Spruce Street, LEOMINSTER, MASS.

FIRST PREMIUM WHEREVER EXHIBITED.

Revolving Wheel and Cylinder egg tray. Eggs are aired and turned without removing from Incubator. Turn the wheel to turn the eggs. Perfect system of turning. Location of eggs changed when egg wheel is turned. No moisture needed. Chicks deposited in nursery outside of hatching chamber. Remove chicks from nursery without opening Incubator. Fill Incubator to one-third more than capacity before testing. Requires less room. Most beautiful. Patented in the United States, England, Germany, France and Canada. Write for catalogue.





Mention this paper.

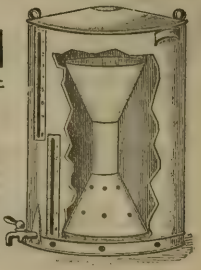
ATHENS INCUBATOR CO., Athens, Ohio.

5,000 Farmers Wanted

to take advantage of this grand offer, for 30 days only, to introduce the

GLOBE CREAM SEPARATOR.

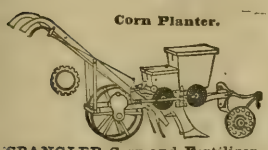
Any 10-year-old child can operate it. Does the work of a $100 Separator. After we get a limited number sold, then the price will be regular, which will be double. Take advantage of this grand offer. Money must accompany order. Price for 10 gallon size, $3; 15-gallon, $3 50; and 20 gallon, $4. Registered letter or postoffice money-order. Write for circulars.



THE NATIONAL CREAM SEPARATOR CO., Dayton, Ohio.

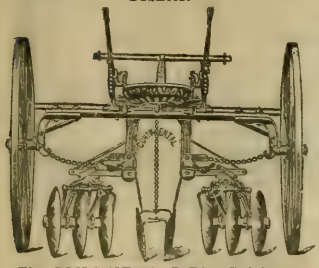
REFERENCES.—Dayton National Bank, Agent American Express Co., U. S. Express Co., Dayton, Ohio.

LABOR-SAVING IMPLEMENTS AND MACHINERY



Corn Planter.

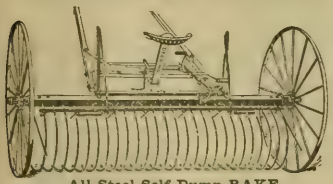
SPANGLER Corn and Fertilizer Planter.



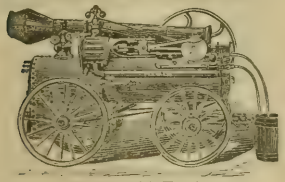
The CONTINENTAL Disc Cultivator and Combined Disc Harrow.



MOWER with Ball and Roller Bearings.



All-Steel Self-Dump RAKE.



PEERLESS Engine.

CORN PLANTERS.

The SPANGLER for Corn in hills or drilled, Peas, Sorghum and Fertilizer. KEYSTONE with or without Fertilizer Attachment.

WEEDERS.

Teeth adjustable to different heights; works two rows at once.

HARROWS.

DISC with Roller Bearings; Lever All-Steel Straight or Slanting Tooth. FERTILIZER DISTRIBUTER—for all crops.

CULTIVATORS.

DISC Cultivator and Harrow; ALL-STEEL Three and Four Tooth; PLANET Jr. and Iron Age Cultivator and Horse Hoes

The Celebrated DEERING HARVESTING MACHINERY.

Mowers, Binders and Corn Harvesters, with Ball and Roller Bearings The lightest draft machines in use. Simple, strong, and on most liberal terms and prices.

HAY RAKES.

Hand and Self-Dump.

CIDER MILLS.

With Wood Crushing Rollers.

FEED and ENSILAGE CUTTERS.

All Sizes for Hand or Power, with or without Stalk Crusher.

PLOWS AND REPAIRS

Of all kinds.

BALING PRESSES

For Hand or Power.

PEERLESS Engines and GEISER Threshers and Saw Mills.

A large variety of machines and repairs carried in stock.

WOOD and POLE SAWS

For Horse or Steam Power.

CORN and FEED MILLS.

All Sizes.

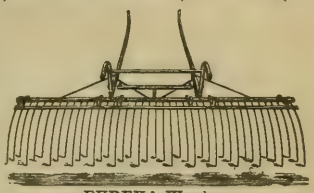
The Original Disc Plow—THE HANCOCK.

For two or three horses. 50 per cent. less draft than any other. Guaranteed to give satisfaction.

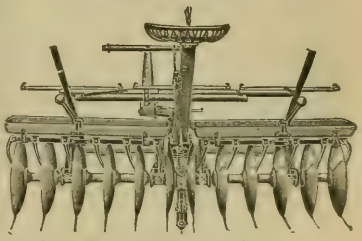
CANE MILLS and EVAPORATORS.

WAGONS.

Farm, Freight, Log, Thimble Skein or Steel Axle. All sizes from one horse to six.



EUREKA Weeder.



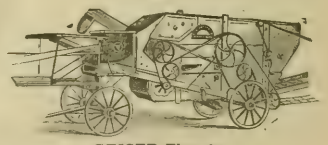
The CONTINENTAL Disc Harrow.



BINDER with Roller and Ball Bearing.



CORN HARVESTER.



GEISER Thresher.

BUGGIES, SURREYS, ROAD CARTS, FARMERS' CARRYALLS, ROAD WAGONS. HARNESS OF EVERY DESCRIPTION.

Write for Catalogue.

THE WATT PLOW CO., Franklin and 15th Sts. ,RICHMOND, VA.

OUR EXHIBIT at FREE STREET FAIR, May 14th to 19th, will be at corner of 9th and Broad Streets, fronting 200 feet on Broad. COME AND SEE US.

COOKING EGGS.

Just a hint for dainty desserts will also suggest a numberless variety to be formed from slight changes in the flavoring, coloring and manner of serving the plain custards, souffles, etc. For a plain souffle stir two tablespoonfuls each of butter and flour into a smooth paste with a little milk; then add to it gradually a cupful of boiling milk and cook it about eight minutes, stirring often. Beat the yelks of four eggs with about half a cupful of sugar and a little nutmeg and add them to the cooked mixture. Then add the whites of the four eggs beaten to a stiff froth and bake the souffle in a buttered pudding dish for twenty minutes in a moderate oven. Serve hot with a creamy sauce.

The well-known floating island is much easier to prepare than most young housekeepers suppose. A plain custard is made, using the yelks of the eggs, and flavored to taste. Then the whites are beaten to a stiff froth and slipped carefully into a large pan of hot water. It should almost boil, but not quite. In three or four minutes it can be skimmed out and set on top of the custard. After it is in place ornament with dabs of jelly, and a very appetizing dish will be the result.

The delicious dainty known as "snowballs" may be made thus: Heat one pint of fresh milk until it is almost boiling, then flavor it with orange water; have the whites of six eggs beaten to a stiff froth, and drop it into the hot milk in large spoonfuls, turning them over carefully so they will swell. Skim them out as soon as they are done and pile them on a plate; then strain the milk, sweeten it to taste, add the beaten yelks of the eggs, and let the custard cook until it is creamy; then pour it over the snowballs.

But as well as these special dishes and fancy desserts prepared from eggs, one must give careful attention to their plain cooking for breakfast and luncheon. "A fried egg is just as wholesome as a poached one, if it is properly done," was the startling announcement of a prominent physician the other day. To fry properly, the fat must be smoking hot and the food drained on absorbent paper—no sort is better than the coarse yellow-brown paper used in meat shops. That is the whole secret.

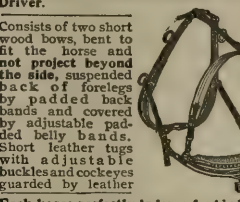
Eggs are among the most valuable of our resources in providing for children. For them, as for adults, it is impossible to prescribe the best method of cooking. One doctor says they should merely be allowed to "set" by standing in hot water. Another tells his patients to drop them into boiling water and boil rapidly for 20 minutes, or until the yelk is like powder. Poaching is insisted upon by others, whereas the personal experience of the writer is that they are far more indigestible done in that way than in any other. It seems, in short, a matter of individual idiosyncrasy as to the method best suited to each. An admirable method, not generally known, is steaming them in an egg-boiler, under which there is a reversible cup for alcohol, so that they may be timed exactly, and can be cooked hard or soft, according to taste.—P. W. H. in *Country Gentleman.*

BAKER'S TRACELESS HARNESS

Light, Strong, Flexible. No Traces. No Whiffletrees.

Invaluable in **Orchard, Vineyard or Hopyard.** **Perfect** for all low down work. **In no respect like the Sherwood** or other heavy steel rigging. **On an Entirely Different Principle. Can't chafe or gall.** No **team, young or old,** know that they are not in their old harness. **A perfect all-round Farmers' Handy Harness. Comfort** for both **Team and Driver.**

Consists of two short wood bows, bent to fit the horse and **not project beyond the side,** suspended back of forelegs by padded back bands and covered by adjustable padded belly bands. Short leather tugs with adjustable buckles and cockeyes guarded by leather shields connect the bow ends with the hames, making the **draft direct** and **just as in the old harness.** The team is coupled up by a **free-jointed straight-wood evener,** hooked into the loop in each bow. **Can be separated or unharnessed in an instant.**



Each horse perfectly independent in his movements and **can close up or spread apart in working.** A short draft chain runs from the evener-clevis to the load. **Used and approved by the best up-to-date farmers and fruit growers in the country.** We don't furnish collars, headstalls or lines. **Price, $12.00, cash with order. If not perfectly satisfactory, return at our expense and money will be refunded.** Write at once for circular and testimonials. **In ordering give size collar used.**

B. F. BAKER & CO., Burnt Hills, N. Y.

The Middle South WOOL BOOK

A Treasure *of* Practical Information for the Home *and* Farm



Presented by the LEAKSVILLE WOOLEN MILLS, Leaksville N. C.

Edition of 1900

FULL SIZE, 7¼x5½ INCHES
∴ BOUND IN CLOTH ∴
∴ STAMPED IN GOLD ∴

DO NOT DISPOSE OF YOUR *WOOL*

until you write to the LEAKSVILLE WOOLEN MILLS, Leaksville, N. C., for samples and catalogue containing liberal offers for the season of 1900. ∴ ∴ A handsome line of Dress Goods, Flannels, Tailor-made Skirts, Blankets, Coverlets, Carpets, Rugs, Cassimeres, Jeans, Buggy Robes and Knitting Yarns, exchanged for Wool, or manufactured on the cash plan. ∴ ∴ ∴ ∴ We pay freight on all wool sent to the mills. ∴ ∴ ∴ A valuable book sent free in every package of manufactured goods. ∴ ∴ ∴ ∴ ∴

LEAKSVILLE WOOLEN MILLS, :: LEAKSVILLE, N. C.

Where to Sell Your WOOL

WE ARE THE LEADING DEALERS IN THE WOOL TRADE IN VIRGINIA.

HIGHEST MARKET PRICE PAID, and no Commission, Freight, &c., charged. SACKS FURNISHED FREE. Check remitted promptly. Correspond with us when ready to sell.

THE WALLERSTEIN PRODUCE CO.

REFERENCES: **10 and 12 So. 13th St., RICHMOND, VA.**

American National Bank and Richmond merchants generally.

WE SAVE YOU MONEY ON FERTILIZERS.

Buy your fertilizers Direct at Wholesale Prices, and get your money's worth.

SPECIAL OFFER TO CLUB PROMOTERS.

WRITE FOR PRICES, SAMPLES AND PAMPHLET.

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The Farmers' Supply Co.,

1433 E. Main Street, RICHMOND, VA.

WE ARE AGENTS FOR THE VERY BEST MAKES OF

..FARM MACHINERY..

OF ALL KINDS.



We have on hand now a full stock of the CELEBRATED

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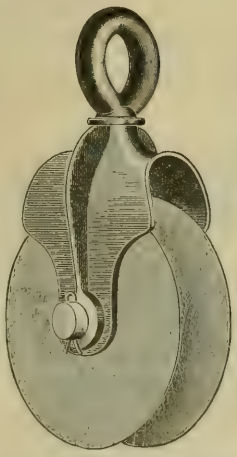


Binders, Mowers, Hay Rakes, Twine and Repairs.

GET THEIR CATALOGUE.

HAYING TOOLS,

Consisting of PULLEYS, CARRIERS, TRACK, BRACKETS, HOOKS, FORKS, and all other appliances for use in storing and handling hay.

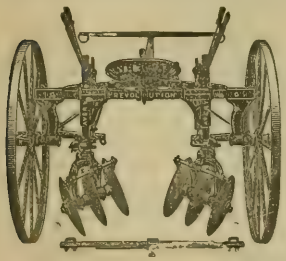


The LONE STAR

HAY RAKE, hand or foot dump, is, we believe, the best and CHEAPEST rake on the market. Let us quote you prices before buying elsewhere.

THE REVOLUTION
Disc Cultivator

Is one of the most popular implements we handle, and justly so, as it has so many points of merit to recommend that we furnish a special descriptive circular.

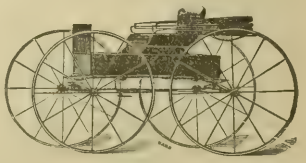


If you need a

Buggy, Carriage, Runabout,

or any other vehicle, you can make a selection from our Special Buggy Catalogue. Very best goods at reasonable prices.

The BLACK HAWK CORN DRILL
(with or without Fertilizer Attachment);
The MILBURN WAGON;
SYRACUSE SOLID COMFORT PLOWS,
ARE AMONG OUR SPECIALTIES.



EVERY IMPLEMENT FOR THE FARM.

SEND FOR CATALOGUE.

There were 903 post-offices in 1800; today we have 75,000—that is, in America alone. It took a letter sixteen days to go from Philadelphia to Lexington, Kentucky; twenty-two days to Nashville, Tennessee. The cheapest letter postage was eight cents and to send a letter more than a hundred miles cost a shilling. Three million letters and papers were then sent in a year, at the present time the post-office handles about 30,000,000 pieces of mail in a single day.—May *Ladies' Home Journal.*

HOLLAND'S FAMOUS TULIP CRAZE

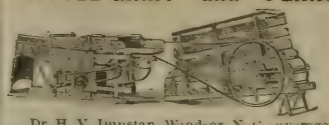
Twelve Acres of City Property were Refused for a Single Bulb of Rare Variety

"In the year 1634 the tulip craze in Holland," writes Clifford Howard, in the May *Ladies' Home Journal*, "became so great that the ordinary industries were neglected. No one wanted to do anything but raise tulips. A rare specimen offered for sale called forth excited bidding. Every one was on the lookout for special varieties. It was rumored at one time that there were but two bulbs of the Semper Augustus in existence in Holland. One of them was owned by a florist in Haarlem, and the other by a dealer in Amsterdam. This rumor was sufficient to arouse the liveliest commotion in tulip circles, and dealers and fanciers hurried forward with offers to purchase—each one endeavoring to cutbid the other. The competition became so eager that finally one man offered twelve acres of city property for the Haarlem bulb, but the owner refused to sell. The bulb in Amsterdam was knocked down to the highest bidder for nineteen hundred dollars in cash, two horses, a carriage, and a set of harness—a total of about three thousand dollars, which in those days was a fabulous sum."

SIMPLE HOME REMEDIES.

It is a great help to a mother to know of safe, simple remedies in case a child awakens in the night with a croupy cough or a painful sore throat. It is not always convenient to call a doctor, and, besides, when one is suffering immediate relief is necessary. One of the best gargles for tonsillitis and bronchial sore throats, and also for coughs, is equal quantities of salt and pulverized borax. Just make a strong solution of it and gargle very often, say every half hour, until relief comes. If there is an ulcer in the throat, touch it with dry borax. A canker or sore mouth can be healed speedily by putting dry borax upon it. A physician recommends the use of this gargle, and says it would be well for every mother (particularly if the children go to school) to use this gargle night and morning if they have the least symptoms of sore throat, as it purifies and kills disease germs (that is, the borax); hence it fortifies the children against contagion. No one will know the real value of what seems to be such a simple remedy as salt and borax) until they once adopt the use of it.

"LITTLE GIANT" and "PENNSYLVANIA" PEANUT PICKERS.



The "Little Giant" and "Pennsylvania" were the first successful Peanut Pickers. They were leaders in 1896. Have added improvements for 1900. No other machines so strong and durable, do the work so easy or so rapidly, require so little power to drive them, or are so easily and quickly adjusted to the various requirements in successful operation. Will thresh Wheat, Oats, Rice, etc.

Dr. H. V. Dunstan, Windsor, N. C., averages 300 bushels per day with smallest machine—the Pennsylvania. Some who do custom work have bought the second and third machine. Men who have the farm, and the means to equip themselves, make more money "picking Peanuts" than in any other work. We have small machines for individual work on plantation or large machines for those who wish to do custom work.

"The day is near when there will not be a hand-picked peanut in Virginia, save only for seed," writes a customer who is operating three of our outfits in Sussex county.

For free catalogue, prices, terms, etc. address

STRATTON & BRAGG,
Hardware Machinery and Engines.
Manufacturers Agts. for Southeastern Virginia and Northeastern N. C.
PETERSBURG, VA.

YOU WON'T FIND A BETTER...
FOR A BETTER ISN'T MADE.

"As Good as Wheat in the Mill."

Here's a Drill that will sow well in any soil. Thousands of farmers pronounce it the most satisfactory implement they ever owned. It's the famous

Kentucky DISK DRILL

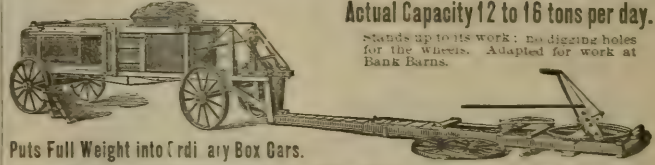


It never clogs. Made in 19 sizes. We also make the Kentucky Shoe Drill with detachable shoe closer.

Catalogue sent FREE.

BRENNAN & CO., S. W. AGRICTLTURAL WORKS, Inc. Dept. A-S. **LOUISVILLE, KY.**

THE FAST WORKING SOUTHWICK HAY PRESS



Actual Capacity 12 to 16 tons per day.

Stands up to its work: no digging holes for the Wheels. Adapted for work at Bank Barns.

Puts Full Weight into Ordinary Box Cars.

Largest Feed Opening of any Double Stroke Press made. LOW BRIDGE. Mention this paper.

SANDWICH MANUFACTURING COMPANY, 200 Main Street, Sandwich, Ill.

* VIRGINIA DIVISION. *

Farmers Mutual Benefit Association.

A Fire Insurance Association, chartered by the State for the farmers of Virginia, under an amended and well protected plan.

Insures against Fire and Lightning, only country property—no stores or unsafe risks. Average cost per year for three and a half years has been $4.00 per $1000, including dwellings, barns, produce, &c. Cost in 1899, $2.00 per $1000. Amount of property insured $240,000. Estimated security in real and other estate, $600,000.

For further information, address, **CHAS. N. FRIEND, General Agent,**
MENTION THIS JOURNAL. *CHESTER, VIRGINIA.*

Not in the Fertilizer Trust..

THE ODORLESS SLAG PHOSPHATE is not in the Trust. We are selling at old prices. Orders must be sent in early to ensure prompt shipment.

Address **JACOB REESE,**
400 Chestnut Street, PHILADELPHIA, PA.

HOUSECLEANING—WALL DUSTING.

The dusting down of the wall is one of the most important parts of housecleaning. This should be done early, even if it has to be repeated later when carpets are lifted. The house moth conceals itself in the dust that collects in the ridges of the cornice and elsewhere on the ceiling. These moths should be swept down early, while they are in an inactive state and before they begin laying eggs. These eggs are concealed in wool, fur, and wherever the moth can find a place which will furnish food for the destructive little grubs that hatch out. All insect life wakes up in April, and often in March, and this is the best time to fight the clothes moth, as well as all other insect pests.

It is useless to dust down ceilings unless the work is thoroughly done. In order to do this the worker must be provided with a long-handled broom, made with a very light handle. An excellent broom with an extension handle was formerly made in Boston under a patent granted to a woman. It was simple and inexpensive, and perfectly adapted to its work of sweeping ceilings and sidewalls. Similar brooms are now sold by all house furnishing stores, but it is still difficult to find a broom for sweeping ceilings with so light a handle as those made by this Boston woman. The Japanese make ideal brooms for sweeping dust from wood and matting. They have light bamboo handles. Illustrations of this broom have appeared in the *Tribune*, and, though it is a perfect broom for all purposes for which it is used in Japan, the handle is not long enough to reach our high ceilings, though long enough to reach the low ceilings of Japanese houses. Nor is the broom stiff enough for sweeping carpets because there are no carpets in Japan, only light rugs, which may be easily shaken. The average American broom manufacturer makes a broom with so heavy a handle that it adds considerably to the labor of sweeping. The ceiling broom should have a handle long enough so that a woman can easily reach any house ceiling when she is standing on the floor, and thus dust it thoroughly.—*New York Tribune.*

ORIENTAL HUMOR.

Some of the similes used by Oriental advertisers are as remarkable for humor and naivete as even those of the immortal Sam Weller. Here are one or two specimens, which have recently appeared in Eastern newspapers:

"Goods despatched as expeditiously as a cannon ball."

"Parcels done up with as much care as that bestowed on her husband by a loving wife."

"Paper tough as elephant's hide."

"The print of our books is clear as crystal—the matter as elegant as a singing girl."

"Customers treated as politely as by the rival steamship companies."

"Silks and satins smooth as a lady's cheek, and colored like the rainbow."

FERTILIZERS—FROM FACTORY TO FARM

WE SELL YOU DIRECT. NO AGENT'S PROFITS. NO SALESMAN'S EXPENSES.

VALUABLE PREMIUMS GIVEN FREE.

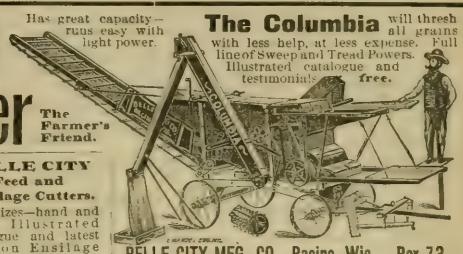
For premium list, prices, samples and book, write

THE SCIENTIFIC FERTILIZER COMPANY, HERR'S ISLAND, PITTSBURG, PA.

A Small Thresher

Has great capacity—runs easy with light power.

The Farmer's Friend.



The Columbia will thresh all grains with less help, at less expense. Full line of Sweep and Tread Powers. Illustrated catalogue and testimonials free.

BELLE CITY Feed and Ensilage Cutters.

All sizes—hand and power. Illustrated Catalogue and latest book on Ensilage mailed free.

BELLE CITY MFG. CO., Racine, Wis. Box 73.

CHARTERED 1870.

Merchants National Bank

OF RICHMOND, VA.

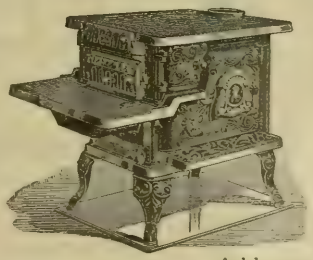
Designated Depository of the United States, City of Richmond and Commonwealth of Virginia. Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

Capital Stock, $200,000
Surplus and Profits, $330,000

JNO. P. BRANCH, President. JNO. K. BRANCH, Vice-President. JOHN F. GLENN, Cashier.

DIRECTORS.—John P. Branch, B. B. Munford, Chas. S. Stringfellow, Thos. B. Scott, B. W Branch, Fred. W. Scott, Jas. H. Dooley, Jno. K. Branch, A. S. Buford, R. C. Morton, Andrew Pizzini, Jr., J. P. George.

Why Pay Enormous Prices



for your Cooking Stove or Range, when you can buy direct from the Factory and save one third of the cost?

Write for Catalogue and full particulars.

Manufacturers of the celebrated FITZ LEE COOKING STOVES

Address

SOUTHERN STOVE WORKS,

815 to 827 North Seventeenth Street,

RICHMOND, VA.

Clubbing List for 1900.

The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever journal you wish.

	PRICE ALONE	WITH PLANTER
DAILIES.		
The Dispatch, Richmond, Va.	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harpers' Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeders' Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harpers' "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 25
Cosmopolitan "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan, "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish *no sample copies* of other periodicals.

Seed House of the South.

RED CLOVER,
MAMMOTH CLOVER,
CRIMSON CLOVER,
WHITE CLOVER,
LUCERNE CLOVER,
ALSYKE CLOVER,
BOKHARA CLOVER,
JAPAN CLOVER,
BUR CLOVER,



TIMOTHY
ORCHARD GRASS,
RED TOP or HERDS GRASS
KENTUCKY BLUE GRASS
RANDALL GRASS,
TALL MEADOW OAT GRASS
JOHNSON GRASS,
GERMAN MILLET,
BUCKWHEAT,
OATS and
CANE SEED.

"Whatsoever One Soweth, That Shall He Reap."

We sell strictly reliable FIELD AND GARDEN SEEDS of every variety at Lowest Market Rates, included in which are RAGLAND'S PEDIGREE TOBACCO SEEDS.

WE ALSO SELL

Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

Wm. A. Miller & Son, 1016 Main Street LYNCHBURG, VA.



TREES

APPLE, PEACH, PEAR, PLUM, &c.

Grape Vines, Ornamental Trees, Shrubs, Roses, &c.

ALL THE DESIRABLE STANDARD AND NEW VARIETIES.

Headquarters for Tennessee Prolific Strawberry.

The Most Reliable Variety Ever Grown in the South.

Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogues free.

AGENTS WANTED. WRITE FOR TERMS.

W. T. HOOD & CO.

OLD DOMINION NURSERY. RICHMOND, VA.

CORRECTION.

In a notice of Bordeaux Spray given in our last issue, the Lenox Sprayer Co.'s address was given as *Pittsburg*, Mass., when it should have been *Pittsfield*, Mass.

HOW TO GARGLE THE THROAT.

As ordinarily done, it is not of much use to gargle the throat. The material does not reach the parts for which designed. A writer in the *Charlotte Medical Journal* points out that if one is really to do good by gargling—that is, if one is to insure that the fluid shall reach the posterior wall of the pharynx—the nose must be held and the head must be well thrown back while performing the operation. He says that by gargling in the usual way only the anterior surface of the uvula and soft palate and the base of the tongue are reached. But by holding the nose and throwing the head back when gargling the medicament reaches every surface of the pharynx effectively.

The comparative value of the two methods can be tested by painting the posterior surface of the pharynx carefully with a strong solution of methylene blue, and then letting the patient gargle with water in the usual way, when it will be found that the water ejected will be clear, then let him gargle again, holding the nose and throwing his head well back, when the ejected fluid will be found stained, and an inspection of the pharynx will show that the blue has been washed away. This is a thing worth remembering, for many observers have maintained that gargling is not only useless as a method of medication, but it is quite ineffectual even as a means of cleansing the pharynx.

Done properly, gargling is often very beneficial to wash off the dust that accumulates from the dusty air and to stimulate or change the action going on in the mucous membrane of the throat. A gargle of salt and water, or even of cold or hot water for common sore throat may give relief.

SALE OF IMPORTED JERSEYS AT "LINDEN GROVE."

Mr. T. S. Cooper, proprietor of "Linden Grove," Coopersburg, Pa., is advertising in another column his sale of Imported Jerseys. The sale takes place Wednesday, May 30th. Mr. Cooper is one of the best-known breeders and importers in this country, and we feel sure that parties interested in the best Jersey blood that money can buy will do well to get his catalogue and attend the sale.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

20 Angora Goats FOR SALE.

MOSTLY NANNIES. APPLY TO

JNO. MATTHEWS, East Richmond, Va.



Elmwood Nurseries.



We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.

APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,

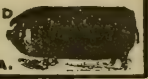
QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.



POLAND CHINA PIGS.

BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.

WRITE FOR DESCRIPTIVE CATALOGUE.



J. B. WATKINS & BRO., HALLSBORO', CHESTERFIELD CO., VA.

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

..AGENTS WANTED..

FRANKLIN DAVIS NURSERY CO., Baltimore, Md.

The Chesapeake & Ohio Railway

EXTENDING FROM CINCINNATI AND LOUISVILLE, AND

THROUGH ITS CONNECTIONS

THE BIG FOUR SYSTEM, from Chicago, St. Louis, Peoria, Indianapolis Sandusky and Cleveland;

THE OHIO CENTRAL LINES, from Toledo and Columbus;

THE CINCINNATI, HAMILTON & DAYTON, from Detroit, Toledo, Lima, and Dayton—

FORMS THE MOST DIRECT And from Five to Twelve Hours the Quickest ROUTE

To STAUNTON, LYNCHBURG, CHARLOTTESVILLE, RICHMOND, PETERSBURG, NORFOLK, And Principal Virginia Points.

H. W. FULLER, Gen. Pass. Agt. C. & O. Ry., Washington, D. C.

Catalogue, with list of farms for sale, may be secured by applying to the following agents:

C. B. RYAN, A. G. P. A., C. & O. Ry., Cincinnati, O.; E. B. POPE, Western P. A., C. & O. Ry., corner Broad and Chestnut Sts., St. Louis; R. E. PARSONS, Ticket Agent, 253 Fourth Ave., Louisville, Ky.; J. C. TUCKER, General Northern P. A., Big Four Route, 234 Clark Street, Chicago, Ill.; H. M. BRONSON, Asst. General Passenger Agent, Big Four Route, Indianapolis, Ind.; E. O. McCORMICK, Passenger Traffic Manager, Big Four Route, Cincinnati, Ohio; D. G. EDWARDS, General Passenger Agent, C. H. & D. Ry., Cincinnati, Ohio; MOULTON HOUK, General Passenger Agent Ohio Central Lines, Toledo, Ohio; or to

T. S. COOPER'S SALE OF IMPORTED JERSEYS

At "Linden Grove," COOPERSBURG, PA.,

Wednesday, May 30, 1900.

When I went to the Island of Jersey it was not my intention of buying anything near the number of Jerseys that I did, but I fell in love with the Golden Lad-Sultannas, and the weakness that I have displayed the last twenty years again got the best of me, and I was not satisfied unless I had the best. To accomplish this it took patience, judgment and money. Those who will attend my sale May 30th, will say they saw the finest lot of cattle I ever imported.

Those who are anxious to improve on the fore udders in their herds, can get at this sale just what is wanted. There will be such a show of Golden Lad cows in milk that old time breeders will be forced to "smile" and grin (to themselves) and say, "What have I been doing the last twenty years in neglecting my cows' udders?" They will see at a glance the prepotency of a most remarkable sire.

Most of the Golden Lad cows and others are again safe in calf to Golden Lad's Champion, 57222 (late Hamley), by Golden Lad, and Champion Winner over the Island, 1899 beating with others, the Champion Winner of 1898, also by Golden Lad. Others have been bred to Golden Lad of St. Peters, 57223, Champion Winner over the three Western Parishes. The young bulls and heifer calves (many out of the Golden Lad cows) will be a rare lot to select from.

Immediately after the sale is over, the buyer can take his return train and feel assured that his purchase will be forwarded promptly, and at as reasonable a rate as can be procured, as has been our practice at all our public sales the last twenty years. **Catalogues will be out May 1, 1900. Send Postal Card for same.**

T. S. COOPER, Coopersburg, Pa.

P. S.—*The entire importation has been examined for tuberculosis* by Dr. Francis Bridge, Veterinarian for the Pennsylvania State Board of Agriculture for 18 years, and health certificates will be given with every animal. The entire importation will be sold, and although tempting offers have been made for certain animals, none will be sold at private sale..—*T. S. C.*

PEDIGREES TRACED AND TABULATED. CATALOGUES COMPILED AND CIRCULARS PREPARED.

..Fine Road and Trotting..

HORSES..

FOR SALE BY

W. J. CARTER (Broad Rock).

P. O. Box 929 RICHMOND, VA.

D. A. AINSLIE,

Successor to GEO. A. AINSLIE & SONS,

..BUILDER OF..

Fine Carriages and Pleasure Vehicles

OF ALL DESCRIPTIONS.

Also BUSINESS WAGONS.

WAREROOMS AND FACTORY:

So. 10th St., bet. Main and Cary, RICHMOND, VA.

IN THE STUD FOR 1900.

At Rocklands Farm,

THE IMPORTED HACKNEY STALLION,

"YOUNG NOBLEMAN"

By CONFIDENCE, 158, by POLK WILLOW, 614; Dam by WASHINGTON, 852, by SHEPERD F. KNAPP.

FEE, $10.00 THE SEASON.

Usual return privilege in case of failure of mare to prove in foal, provided the stallion is alive and in my possession.

NOTE—Young Nobleman won the gold medal Islington, England, and has captured numerous prizes at American Horse Shows. He is a horse of fine size and splendid muscular development, and his get are grand looking specimens of their breed. Further information supplied by

E. J. ELLETT, Manager.

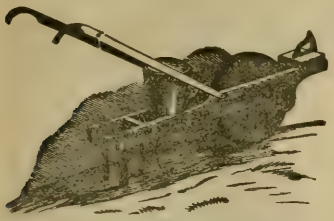
THOMAS ATKINSON,
Rocklands Farm,
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The University of the South, at Sewanee, Tennessee, has placed its 8,000-acre tract of hardwood timber near that town under the management of the Division of Forestry. An official of the Division will mark all trees to be cut and will draw up the logging contracts to provide for the preservation of young growth. It is intended to make the forest yield a permanent annual revenue to go toward the support of the college.

Another interesting tract to come under Government supervision is one of about 47,000 acres, owned by the Adirondack League Club. It is in the Adirondack Mountains of New York, near Lower Saranac, and is kept primarily as a game preserve. The working plan will provide for the removal of all timber which can be spared without injuring the forest.

WAFFLES.

One quart of flour.
Four eggs.
One quart of buttermilk.
One teaspoon of soda.
One tablespoon of melted lard or butter.
The butter should be about as stiff as strained honey.

In the *Review of Reviews* for May there is editorial comment on Admiral Dewey's candidacy; on the government of Puerto Rico under the law recently passed by Congress; on the proposed government of Alaska, and on the developments of the month in financial and industrial circles. Other topics treated in "The Progress of the World" are the rush to Cape Nome, fox-breeding in Alaska, the April elections, the epidemic of strikes, the opening of the Paris fair, the military operations in South Africa, and the Delagoa Bay award.

STRAWBERRY WINE.

Crush six quarts of ripe berries and pour over them two quarts of water. Let them stand till the next day, and then press out the juice, adding two and one-half pounds of sugar to each gallon of juice. Put into a stone jar or jug and tie a thin cloth over the mouth, and be very careful not to shake while the fermentation is going on. This will take about six weeks, when it should be racked off and bottled and corked. This is a beautiful wine, and is delightful for flavoring jellies and sauces.

HOT BISCUIT.

One quart of flour.
One generous tablespoon of lard.
One teaspoon of salt.
One even teaspoon of soda dissolved in two of water.
One scant pint of buttermilk.

These should be made up quickly and rolled out half an inch thick. Bake in a hot stove for ten minutes, putting them in the bottom of the stove firet to rise and then move them to the top shelf to brown.

MUFFINS.

One quart of flour.
One teaspoon of salt.
Three eggs beaten separately.
Three cups of buttermilk.
One teaspoonful of soda dissolved in hot water.

Bake quickly in small rings or pans, which should be well greased and hot.

RISEN SALLY LUNN.

1 quart of flour.
3 eggs.
2 tablespoons of butter.
2 teaspoons of white sugar.
1 teaspoon of salt.
Half-cup of yeast.

Beat eggs very light and mix all the ingredients and set to rise at night. When risen, pour, without stirring, into a cake mold and let rise an hour before baking.

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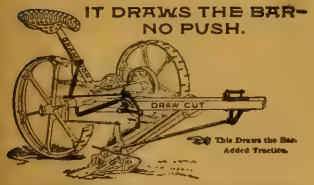


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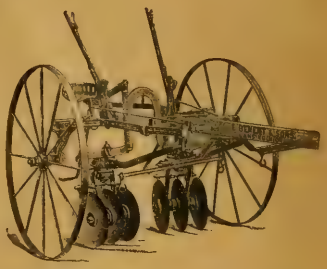
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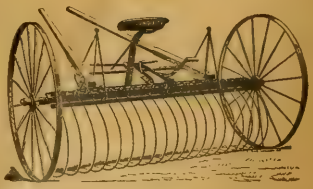


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J. F. JACKSON, Editor and General Manager.

Vol. 61. JUNE, 1900. No. 6.

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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, June, 1900. No. 6.

Farm Management.

WORK FOR THE MONTH.

The month of May up to the 15th of the month was cold and dry, and as a consequence crops made but little progress and the work of planting and cultivation was much hindered. The season is, through all the South, one of the latest known; indeed, the Weather Bureau says that it is unprecedented. A warm wave for two or three days, followed by rain on the 18th and 19th of May, considerably improved the condition of the land and of the crops, and enabled work to be resumed. This change came, however, too late to materially help the hay crop, which may now be considered probably not more than a half crop. Wheat has maintained its high condition, and promises to make a good crop. The latest returns go to shew that throughout the country much damage was done by winter killing, and that the area for harvest is at least 3,500,000 acres less than was seeded last fall, and will not greatly exceed the area harvested last year. The condition, however, is in advance of the average for the last ten years, and has rarely been exceeded. In Maryland, the condition is 94, in Virginia and North Carolina 100, and in South Carolina 101 per cent. The crop in Europe is backward, the season there being as here—nearly a month late.

The area of the tobacco crop seems likely to be considerably reduced, especially in the bright sections; whilst the area planted in cotton seems likely to be largely increased. The lateness of the season, however, will have some effect on the yield of this increased area, and the crop may not, therefore, prove as much larger as the increased acreage would seem to imply.

The corn crop would seem likely to be about a normal one as to area, but late.

Fruit prospects are still good, though the dry, cold weather has had the effect of causing some dropping of both peaches and apples. The strawberry crop has been materially shortened by the cold, dry weather.

The completion of the work of planting the corn crop should be pushed as fast as possible. Even on the rich river low grounds, corn planted later than the 10th June is very apt to be caught by frost before fully matured. Let the cultivation of the crop receive constant attention. The old custom of cultivating twice and then "laying by" the crop is one better observed in the breach than the observance. Cultivate every time the surface becomes crusted over, and keep the ground covered with a dust mulch and thus conserve the moisture. Cultivate level, cultivate shallow, and cultivate as long as you can get the team through the crop without injury to the stalks. To one who has never carefully examined the root system of the corn crop, it may seem foolish to be thus emphatic in urging shallow repeated level cultivation, but recent experiments conducted in North Dakota

only serve to confirm the conclusions previously reached, that shallow level cultivation alone is permissible in a corn crop if the best results are to be obtained. In the North Dakota experiments, thirty days after planting, at the second cultivation, the roots from adjacent hills (hills three feet apart) already met and interlaced. The main development in the early part of the season is laterally or to the side. A few roots had reached to the depth of twelve inches, but the bulk of the growth was within eight inches of the surface of the ground. Six inches from the hill the main roots laid within two and a half to three inches of the surface. Midway between the hills they had reached a depth of four and a half inches. A sample of corn roots taken fifty five days after planting, showed that at this stage the main roots had penetrated to the depth of two and a half feet. The number of horizontal roots had increased, and their length was much greater, many extending from hill to hill (three feet eight inches), inclining most of their length, but finally at about three to three and a half feet from the hill, dipping often almost vertically downward. At this stage of growth the whole soil to the depth of two feet was practically filled with roots. A sample of corn roots taken ninety days after planting showed that the whole field to the depth of three and a half feet was fully occupied by the roots. At the last cultivation of the crop sow cow-peas, German or sapling clover. This will give winter and spring grazing and forage, and at the same time help the land.

We invite the attention of our readers to the article in our last issue on Forage Crops. There is going to be need for much forage to be raised to make good the deficiency to the hay crop and the shortness of pasture. With our facilities for growing all the different forage plants there is no necessity for the shortness of the hay crop to make any scarcity of feed for stock if only each one will give attention to the subject. Corn for forage and for ensilage should be at once planted. Plant rows two feet six inches or three feet apart, and let the stalks stand six or eight inches apart in the rows. This will enable well-matured stalks to be grown, and with a fair proportion of ears. Corn planted thickly as when sown broadcast is at best but poor feed, some 90 per cent. of it being water up to the time when the ears begin to glaze. This makes neither good fodder nor good silage. Sorghum should be seeded at once. It makes excellent feed for milk cows to supplement a failing pasture in July and August. A mixture of corn or sorghum and cow-peas makes an excellent hay crop. The sorghum or corn holds the peas up from the ground, and enables the crop to mature better, whilst at the same time the hay is easier to cure. Sow a bushel of peas and half a bushel of sorghum to the acre. Soy beans should be planted at once, as they mature slowly.

It is yet too early to sow Rape. It should be seeded in August for fall and early winter feeding.

Millet makes an excellent hay crop, and one that will be ready for cutting in from 60 to 75 days from seeding. There is with some farmers a prejudice against growing millet on the ground—first, that it is very hard on the land; and second, that the hay is not good for stock. As to the first point. If millet is cut before the seed forms it is no harder on land than other forage crops. It is true that to make a heavy yield the land requires to be in good heart and condition, but we have seen excellent crops on land far from being rich. The great draft it makes on the land is when the seed is forming, as it is a very heavy seed-producing plant, but for hay the seed should not be allowed to form, but the crop be cut when in bloom. This will give a much heavier and more nutritious hay. As to the second point.—Careful experiments made in feeding millet hay to stock of various kinds have demonstrated that it may be safely fed to animals of all kind, and especially so when the crop has been cut before the seed formed. It is not, however, well to make it the exclusive long feed of any animals, and especially horses, for a long period of time, as it seems to affect the kidneys. If fed in connection with other feed no harm will result. The land should be finely prepared, and seed at the rate of one bushel to the acre, be sown broadcast. The German millet makes the heaviest yield, and is usually to be preferred to the other varieties.

The saving of the hay and clover crop will require attention this month. Do not fall into the mistake of allowing these crops to become too mature before cutting. Whilst it is true that the nutritive value of both hay and clover continues to increase up to the period when the seed is formed, yet the hay is neither so palatable nor so full of aroma if it is not cut until this period. To have a fine sweet-smelling appetizing hay, with a very good nutritive value, cut just when the hay and clover is in bloom and before the seed forms. In curing the crop, do not allow it to lie exposed to the scorching sun and drying winds any longer than is absolutely necessary to dry out sufficient of the natural moisture in the plants to permit of its being safely stored in bulk. This will be found to be much less than the time usually given. As soon as the grass or clover has become wilted, draw it into windrows, and let the curing continue in these rows, and in cocks rather than broadcast on the ground. The color and aroma of the hay will, in that way, be preserved. When cured in this way, so that no moisture will show on the outside when twisted into a tight lock,

the crop may be safely stored away, and the more closely it is packed away the better will be the hay. It should heat considerably, but must not be disturbed after being once stored away, or it will spoil.

Do not allow the wheat and oat crops to become overripe before cutting. The sample of grain will always be brighter and the quality better if cut just before becoming dead ripe, and much loss from shaking will be thus avoided. See to it that your binder and harvester is in good working order a week or ten days before you are likely to need it, and then, if any parts are needed or repairs required, the same can receive attention and the crops not have to stand spoiling for want of the machine to cut it. When ready to commence cutting, see to it that you have hands sufficient to keep up with the machine, and that they are competent to do the work required. Wheat and the other cereal crops never set up in shock so well, nor stand so firmly against stormy weather, or turn the rain so well as when set up directly from the machine. See that your stock hands know how to build a shock that will turn the rain and protect the grain. Good shocking means the saving of much money, especially if harvest is followed by a showery period.

Keep the tobacco and cotton crops growing by frequent cultivation, and see to it that worms are kept down by spraying or careful worming. Do not top your tobacco too high. Better to have fewer leaves fully matured and of a uniform color than more in quantity of a less desirable quality.

Land should be plowed and prepared for planting the second or late Irish potato crop, and for ruta bagas and turnips. The potato sets, if taken from the first early crop, should be spread out in the shade to green and put out the sprouts. When well greened, cover lightly with wood's mould or straw, and leave for the sprouts to grow out. If prepared in this way before planting, every sprouted set will produce a plant. These sprouted sets should be planted in the bottom of a deep furrow and only be just covered with soil at first. As the sprouts grow the soil should be worked on to them until the furrow is filled level.

Sweet potatoes should be planted from slips and cuttings.

BETTER COMBINATIONS OF FARM CROPS AND BETTER METHODS OF FEEDING THEM.

Editor Southern Planter:

It has been my custom, from which I will not depart, that before I put out anything for the guidance of others, wherein new methods or new combinations are brought into play, to ask my fields or my stock to testify to their usefulness or to condemn.

Carrying out this idea, and in the matter of the "dry silage," or mixture of corn stover, kaffir corn, cow-pea and soy bean straw, cut sheaf oats, all cut into short lengths and crushed as described in my first paper, I have so proceeded.

This is the report my farm stock makes. In the writer's experience of forty years, with all types of farm animals, I can truthfully say that at this time, or the beginning of the "hard work season," my horses have never been so fat—their hair, skin and bowels in so perfect a condition. Never seemed in better shape for hard work. I cannot remember a winter that, at different times, our family cow would not occasionally get off feed, quit "chewing her cud," or her bowels get very loose, and when in that semi fluid condition for a day or two, there would be a very offensive odor emitted. At the same time, the milk would have a disagreeable smell and a greasy feel. This disagreeable odor from droppings and milk comes from broken down and partly decomposed animal tissue and milk globules. In other words, "dead cow." Such milk was or is totally unfit for grown people to use—fatal to babies.

I venture this statement: That not one dairy in fifty, that milks twenty cows and feeds a badly balanced ration, or a heating carbonaceous food, and uses oil or cotton seed meal to balance up the butter fat in milk to pass the milk inspector's tests, instead of feeding a balanced feed to get the same result, but has at all times one or more cows that ought not to be milked or their milk be put with the rest of the milk of the herd. No wonder at the mortality among the little ones. No wonder that butter that stands up well when fresh, breaks down when a few days old. It is tainted with diseased germs.

One object the writer has had in view the past winter in feeding and milking our family cow, was to note the condition of appetite, the hair, skin, bowels; be on the lookout for foul odors from droppings, for that greasy feel and peculiar smell from the milk—to watch with both eyes and nose.

I would make oath that not one time have the droppings been too soft or mushy, the milk felt greasy, nor has there been a taint of an offensive odor from stable or milk pail. Her hair shines, skin is soft, seems always hungry, and would be counted by a stock judge in "prime condition." All other farm animals make similar reports.

Now a word or two about the economy. I have not fed one pound of hay to any of our animals, and they have eaten so freely of the crushed feed that I feed less than half the grain I usually feed during the winter. This item alone will be quite an object when

viewed from a stand named at the conclusion of the paper. While I have been feeding on what I have heretofore wasted with the results named, my neighbors have been feeding with high-priced hay; while I have been immune from all kinds of animal ills, they have had the colic—the cows off feed, etc., in their barns.

I think it will be useful if I give my crops for this year. I have 170 acres cultivated land. I have cut the corn crop down to ten acres, but have put on as a top dressing 10 spreader loads of well rotted manure per acre. Will cut this thoroughly with the disc harrow to mix the manure with the fine soil. Just before planting, we will plow this fine soil and the manure below the surface or in the bottom of the furrow. This fine, rich soil will be deep enough to hold moisture and rich enough to feed the corn roots and give promise of a big crop. I will drag and go over this ground until the soil to the entire depth plowed is pulverized. Will do the bulk of the cultivation with the lever harrow, finish with perfectly level cultivation and leave a deep dust blanket. Will this pay? Will tell your readers later.

This plan is the result of a careful study of the ways that have been followed by the men who have raised from 150 to 239½ bushels of shelled corn per acre—modified to suit the conditions to be found in my fields.

It will probably take three times the labor and double the expense, but promises six times the results.

My experience with cow-peas and soy beans, the readers of this paper are familiar with; and that I consider corn the standard (when stalks and ears are fed) of our feeding crops. I look to kaffir corn, sorghums, etc., for the carbonaceous feeds, and to soy beans, cow peas, oats and the clovers for the protein.

With these feeding crops, as I stated in an earlier article, I am independent of the mills and free from the oil meal and cotton seed meal trusts.

At this point, I quote from Prof. T. L. Heacker, of the Minnesota Experiment Station—higher authority I could not quote from: "The combination of feed in your letter will make so perfect a balanced ration that the dairy cow may eat to her fill and yet there will be no danger of 'garget,' 'milk fever,'" or danger of dairy cows 'burning out.' And an excellent fattening ration compounded."

To resume the crops. I shall grow 75 acres of cow-peas and soy beans for seed, and use the thrashed straw in the dry silage—15 acres in kaffir corn and soy beans, ¾ bu. of soy beans, ½ bu. of kaffir corn, both kinds of seed on the same rows, and rows 30 inches apart.

If asked what crop gave the most food substance per acre (not bulk), I would say unhesitatingly, kaffir corn and soy beans. I had some trouble to plant this combination and get the mixed seed evenly planted. That is all overcome now, and how will be told in my next.

To this there should be added, that a perfect balanced ration can be made with kaffir corn, soy beans and sheaf oats. I say soy bean rather than cow-pea in this, because it is much easier to harvest the crop of kaffir corn and beans than where cow-peas are used.

Another part of my planting is 25 acres of oats. This was sown with full 3 bu. of seed per acre on a field where the ground was thoroughly well prepared, and sown April 21st (purposely late). I added to the oats ¾ bu. of dwarf soy beans per acre. This is a new experiment. I hope for good results.

In my latitude, I cannot grow the Canada field pea. If the soy bean will take its place, it will mean much to farmers and feeders.

These oats will be cut when in the milk stage with the table rake, and when sufficiently cured, hand bound or stacked loose.

Ten acres of fodder corn will be put in. Seed will be used at the rate of 1½ bu. per acre, rows 30, 36 and 48 inches apart. I need further experiment as to distance apart of rows. In the 48 inch rows, I will add ½ bu. of medium soy beans per acre, and expect quite a crop of small ears and nubbins and a good yield of beans. My planting last year of this crop gave the most tons of feed, but think with rows further apart, more grain will be added.

Fifteen acres will go into cow-peas and soy beans—¾ bu. of each, mixed and sown 24 inches between rows. If asked the best feed I raised, the one most relished by my stock, this one I should name, but it is very rich, and must be fed carefully. Twenty acres in pasture makes up my full acreage.

The oat and wheat stubble will, immediately the crop is set up in straight wide rows, be cut with the disc harrow and a mixture of cow-peas and soy beans be planted by August 1st. This will make fine pasture for August and September and up to October 15th, when what is on the land will be plowed under, and 2½ bu. of rye or cheat will be planted to be turned under in the spring for corn and soy bean seed crops.

The ten acres of corn land will be cut with the disc, be fairly top dressed and sown to wheat.

This is intensive progressive farming, and land so treated gets better each year. I do not know what an acre of ground can do.

Cold-blooded, calculating men will ask, Will this pay? I reply, that our fields gave up last year an average of 2½ tons. With the knowledge gained and the difficulties about planting overcome, I will expect more than three tons this year.

I have had a local demand for all the surplus this year. Have sent samples to feeders, dairymen and Experiment Stations, and can now feel assured of a demand from city dairies, transfer firms, etc., to take many times what I can put out.

If it be a farmer who asks the question, who must winter idle horses, or dry cows, or is feeding colts or calves, I will answer, that with this ration he will not need to feed an ear of corn; he will have better ewes, bigger and fatter lambs, more and better wool; he will have quicker maturing hogs, cheaper pork, and immuity from cholera and hog plagues.

All will be interested in the cost. Up to the time these crops are in the stacks, they will cost no more to harvest than our common farm crops. Taking these crops from the stack, cutting and crushing them and putting them into the mow, will cost less than 75 cents per ton. I made a special test with the No. 0 Cutter. I ran through 1,980 lbs. in twenty-minutes of cow-pea straw. This is the hardest to cut by reason of a hempy covering on the vines.

All crop growers will want to know at this time about the season for planting and how much they will interfere with common crops. Beginning with corn, from May 1st to June 1st; Kaffir corn and soy beans, May 15th to June 15th; soy beans for seed, from June 1st to June 20th; cow-peas, June 10th to July 20th; fodder corn, from May 10th to July 1st.

In cultivation, a man with a lever harrow, or Hallock weeder, will take care of twenty acres of these crops where he will one of the field corn.

Harvesting will begin in the forepart of August and be almost continuous to the end of the corn crop.

The open door into the markets of the world and the corn propaganda at the Paris Exposition, will boom the price of corn in a way that it cannot be fed wastefully as it is now.

The best meats, butter, cheese, pork and wool will command the world's markets. To produce these things, the best of feeds and best methods of feeding them is a necessity. Fellow farmers, wake up!

Olney, Ill. ROBT. C. MORRIS.

INDIAN CORN, CULTURE, FERTILIZERS, ETC.

Editor Southern Planter:

However desirable it may be to have a "clover sod," or "deep, rich black loam," in which to plant corn, the fact remains that every one cannot have all this; and also that, however desirable it may be, it is *not* "essential," as evidenced by the fact that good crops of this important and extremely valuable cereal are annually made the country over without them. The idea of a soil specially adapted to corn culture is a myth; a *deep, rich* soil being all that is necessary in any given case; let that soil be a bed of almost pure sand, or the stiffest of clay, the blackest of prairie or almost pure "pipe-clay, or "buck-shot;" the richest of alluvials or the reddest of red clays or yellowest of "mulatto" clays; the blackest, richest, deepest and loosest of "reed brake," viz., reclaimed swamp or marsh land or "beeswax" clays, so stiff that the best of steel plows will hardly "faze" it. On all of above varieties of soil, with others too numerous to mention, corn seems to thrive equally well *under certain conditions.* Latitude, climate, rainfall, deep and thorough prepartion, and shallow, but oft-repeated after-cultivation, coupled with intelligent fertilization, and a careful and judicious selection of seed, are the *controlling factors* in the case, while the kind or variety of soil has but little to do with it. Any soil that is kept well supplied with vegetable matter will make very fair corn, but in order to get *best* results, the ground should be made *rich.*

A few years back J. Z. Drake, of South Carolina, succeeded in harvesting 255 bushels from a single acre; while last year we heard of 225 bushels being made per acre in Tennessee Valley, and crops of 100 to 150 bushels are by no means rare. To such an extent is this the case that I fully believe, that if the 100 bushel mark was set as the *standard,* to which all could attain if they so willed, and would work to that end, it could and would be reached far oftener, and by a far greater number of soil tillers than it now is. The *first* essential in corn culture is a deep and thorough breaking of the soil and thorough pulverization of the seed-bed. Second. A careful and judicious selection of seed. This is of far greater importance than many of our brother farmers seem to believe, judging from the decidedly shabby samples of corn, both white and yellow, that are found on the market. *I have serious objections to* the almost universally recommended and practiced plan of *selecting the seed corn in the field.* This would do if earliness were the sole object, but this, except in the extreme northern limits of corn production, is not, or should not be the case. *Depth* of grain, *smallness* of cob, and *weight* of ear, are—in my opinion—of far greater importance than mere earliness, *length* of ear, or even *number* of ear. In selecting seed, *weight* of ear is my main criterion of quality (my seed ears range from 1¼ to 1½ lbs. each, with the exception of an early small-eared variety I am partial to, which weighs ¾ lb. each—on an average makes two ears to the stalk, and will bear being left as thick again in the drill as will the larger varieties).

I will now consider "*Fertilizers for Corn.*" I subjoin three simple, but thoroughly good and reliable formulas that can be mixed at home, and at but little expense.

FORMULA No. 1.

Stable Manure	800	pounds.
Cotton Seed (crushed or rotted)	750	"
Dissolved Bone	450	"
Muriate of Potash	300	"
Scrapings of barn yard	1,500	"

Apply from 500 to 1,000 lbs. per acre.

FORMULA No. 2.

Barn yard and Stable Manure	1,000	pounds.
Bone Dust or Acid Phosphate	800	"
Kainit	800	"
Rich earth from fence corners, etc.	1,400	"

Apply from 500 to 1,000 lbs. per acre.

FORMULA No. 3.

Stable Manure	600	pounds.
Kainit	800	"
Bone Dust or Acid Phosphate	600	"
Rich earth, barn-yard scrapings	600	"

Apply from 500 to 1,000 lbs. per acre.

Did circumstances favor, or even permit, I would not hesitate to apply at least a ton of either of above —broadcast—per acre ; neither would I hesitate about at least doubling amount of potash in either of above formulas. Where one could afford it, this might be done with decided satisfactory and profitable results. Among the three leading elements of fertility, potash stands first, phosphoric acid second, and nitrogen third, as to their value and importance in the corn field ; though in most instances a combination of the three is better than the application of any single element, but where single elements have been applied, as in many and extremely varied tests at the Experiment Stations throughout the entire country, potash alone exhibited far more beneficial results, with a greater net profit than either nitrogen or phosphates.

G. H. TURNER.

SAVING HAY.

Editor Southern Planter:

Any green vegetable cut before maturity and cured is hay. If put in a close pit or house, and kept from the action of the air, it is silage or green hay.

Hay is the most universal and important part of animal food. "All flesh is grass," says the One who knows. Grass foods are helpful, but hay is absolutely indispensable. Animals fed on grain rations alone do not thrive, and often die with an abundant supply of grain in their troughs. But with plenty of hay, or "roughage," as it is often called, they can live, and often do the heaviest of work.

There are four thousand species of grasses named by botanists. Any of these will make hay. Some, of course, are more suitable than others. Some are even poisonous. And some have very little nourishment. But from this amazing list there need be no scarcity of hay. All such scarcity is due to the inefficiency of those who could do better. Plenty of grass and plenty of hay are the foundations of successful farming. The Dutchman who builds his barn first, and his residence afterwards, is always a thrifty farmer.

Grasses of all kinds are now growing. Hay making is now in order. Almost every week from May to December the Southern farmer may be saving some kind of hay. Yet, strange as it may sound, very many farmers have no hay. If they have a barn, it is an empty barn. Shipping hay is an immense business. I desire to urge our farmers to "Make hay while the sun shines." All through summer, cut, cure, and store or stack hay, for if you have no barn room, hay may be kept by careful stacking.

WHEAT HAY.

"Necessity is the mother of invention," and this is true in feeding as elsewhere. Short supplies have necessitated experiments which have taught valuable lessons. Wheat has been known as the great bread producer since history began, but it is just now beginning to be valued as a hay producing crop.

In many sections, rust makes it unprofitable to raise wheat for bread. It is too uncertain. But experience shows that if cut just as it is in the dough state, and before the rust has done its fearful work, it makes the best of hay. This hay is very easily cured and kept. The grain makes it a perfect ration for horses, mules, oxen, and milch cows. Horses and mules fed upon it do full plow work in the heat of summer, and keep in health, and improve in flesh. Wheat that will make twelve to fifteen bushels per acre of grain, will make two to three tons of hay. Twelve bushels of wheat would be worth about ten dollars, two tons of hay would be worth thirty dollars. These are the values in the South. If the hay would be cheaper in the North and West, the wheat would be less valuable at the farm. This solves a great question of how to feed plow stock on many a farm through June and July.

CORNSTALK HAY.

Another wonderful discovery is the food value of cornstalks. These have been worthless, and often expensive to get rid of. Now we find that the stalk makes good food. If properly cut and cured and ground up—shredded—with the shucks and blades, the hay is equal to the timothy and clover we usually buy. The shredder destroys the coating of silex which gave strength to the stalks, but was in the way when fed to stock. The immense crop of cornstalks

is thus found to have food value, and hence a market value.

We have been slow to learn the value of our cotton seed, but we are learning that every bushel is worth at least twenty five cents to the farmer. So we can learn that every ton of cornstalks is worth from ten to twenty dollars to the farmer.

Thus with our cotton-seed meal and hulls, wheat hay, and constalks shredded, we can rival the world in producing cheap cattle, and the choicest beef. All that is needed is intelligent farming. Learn to plow and to feed your worn soils with phosphoric acid and potash, and you can grow wheat and cornstalks, and clover and grasses of many kinds. You can have full barns of the best of hay.

Save hay, and feed hay, and sell hay, and get rich and happy by using the grass instead of wearing yourselves out killing grass.

JAMES B. HUNNICUTT.

"LONG ACRE" DOINGS.—RAPE.

Editor Southern Planter:

As an experiment we sowed four acres of Dwarf Essex rape on March 20th. We have never before sowed rape in the spring. On May 1st it was well up and at once took on a rapid growth. April 18th we had the most copious rain of years. It flooded every thing and settled all newly plowed land into a solid mass. There was no more rain of much account till May 17th. The average maximum temperature all this time was 75° F. Many days it was at 80° and above, and went as high as 90° on two days. At the latter date the rape had nowhere attained a height exceeding six inches. On the 16th of May, there being no signs of rain, we plowed down the rape and planted the field in corn. We would have availed ourselves of what growth there was by turning the shoats in, but by stress of other work we had not been able to fence the field pig tight.

Evidently this spring has not been favorable to the growth of a cold weather plant. I think in such a spring as we had last year the experiment might have been fairly successful. I hardly think we shall sow in the spring again, however. Rape appears to be a plant which requires a continuous growth from the start. A dry or hot season gives it a check from which it does not again recover. Why repeated freezings during winter do not give it a like injurious set back must be due to its more northern habitat.

We shall make sowings next fall and apply a fertilizer rich in all necessary ingredients, and apply nitrate of soda again early in the following March. It is not worth while to try to raise rape on poor land. It requires a rich, mellow soil. Land which will produce thirty to forty bushels of corn is not rich enough. At a time of year when most needed there is scarcely any nitrification going on in the soil, and the plants must be fed with a spoon so to speak. One hundred pounds of nitrate of soda is only a moderate allowance to apply in the spring. Rape, like all its family, requires a liberal supply of phosphoric acid. It is less particular than some plants as to the form in which it is supplied. It is able to get what it needs from any combination. Nor must we overlook potash. If I remember correctly, this plant contains nearly as much potash as the potato.

Voorhees gives the following formula for rape and turnips: "An application of a fertilizer containing twenty pounds of nitrogen, derived in part from nitrate, forty of phosphoric acid, derived in large part from phosphates, and forty of potash, derived from muriates, would be a fair dressing on soils of good character. On the poorer soils the application should be very largely increased." That is, an application per acre approximately of 130 pounds nitrate of soda, 300 pounds of dissolved S. C. rock, and eighty pounds of muriate of potash.

We wish rape for a very early pasturage for hogs. Crimson clover comes nearly as early, but it has proved an uncertain crop with us. We keep at it, however, for when we do get a stand it is well worth the pains. I doubt if even fall-sowed rape can be relied upon as pasturage much later than the middle of June in this latitude, if as late as that. Early cabbage is the most certain successor in absence of clover.

We have hardly had an opportunity as yet to tell the usefulness of rape on a large scale in feeding swine. We wish very much to succeed in raising it, for it is the only thing we lack to complete our all-the-year round series. It is only a matter of six weeks' feeding, and we feel willing to go to considerable pains and cost to get it.

OLIVER C. WIGGIN.

Charlotte Co.

THE USE OF CHEMICAL MANURES.

Editor Southern Planter:

Commercial fertilizers generally consist of a mixture containing all three of the necessary ingredients of plant-food: nitrogen, potash, and phosphoric acid. Such mixtures are made as a convenience to farmers, not because they are necessarily the best way to use artificial manures. Fertilizer manufacturers rarely make such claim.

There are some conditions in which such mixed fertilizers cannot be used to advantage. For example, on a well rotted clover sod, which is already too rich in nitrogen as compared with potash and phosphoric

acid, a complete fertilizer containing nitrogen can only be used at a loss of nitrogen. Such soils should receive potash and phosphoric acid only.

Chemical manures, that is the materials from which commercial fertilizers are manufactured, such as tankage, kainit, acid phosphate, etc., may be used to advantage under all farm conditions. These materials used alone are perhaps no better than mixed goods, but they have the advantage that they can each be used as wanted. In the absence of a well rotted clover-sod, tankage would be used to give a heavy growth of stalk and leaf for the silo; for such purpose a complete fertilizer would probably supply more phosphoric acid than the crop could make use of.

In growing potatoes with a soil rich in decaying clover-sod, potash salts in the shape of sulphate would be used alone, or with a light application of some phosphoric acid-bearing material, such as acid phosphate or bone-meal. Under the same conditions, corn for grain would receive, after well up, from 100 to 300 pounds of kainit per acre, and 100 to 200 pounds of acid phosphate, broadcasted between the rows and worked in with an ordinary horse-hoe. It would be a great deal worse than useless to apply tankage under such conditions.

There is no danger of injury from the use of fertilizer chemicals if they are so applied as not to come in actual contact with the leaves and vines. There is some slight danger when applied with the seed, as actual contact with the young and tender roots would cause some loss. Of course, fertilizers of all kinds should be applied early for quickly growing crops, but for corn or late potatoes applications of mineral fertilizers, after the plants are fairly well started, are very successful.

Chemical fertilizers, containing only potash or phosphoric acid, are subject to little loss in the soil from leaching. All forms of potash and phosphates are stable, and suffer no loss of quantity or quality by long standing unused. For this reason, it pays to buy same in quantity if any material saving in price may be effected thereby.

Moore Co., N. C. BRYAN TYSON.

ARTICHOKES.

Editor Southern Planter:

The communication of Mr. Bellwood in April issue upon the subject of artichokes was timely and valuable, not only that it added an authority to the question of growing the plant, but as furnishing a new profitable product to the farmer.

Artichokes are much simpler to grow than most crops to be used at home; in fact, it is hardy, and bears neglect where others would fail. I refer to this in the idea of suggesting that there is possibility of a wider use for the product than is named by Mr. Bellwood.

In Charleston, S. C., the artichoke is a common and prominent article on the market stalls, and the demand for it is sufficient to warrant its presence with other roots.

It is a great favorite as an article for pickling, and requires no other preparation than cleansing and at once placing in vinegar, and is ready for use in a few days. B.

NOTES ON THE MAY ISSUE OF THE PLANTER.

Editor Southern Planter:

I hope, friend Jackson, that you will keep on hammering on the forage matter. It makes me sick here to see men calling themselves farmers pass my house daily hauling bales of cotton-seed hulls home from the oil mill to feed to stock, when they could grow infinitely better feed and improve their land by the growing.

BROMUS INERMIS.

From what I have seen of this grass, for I have not grown it, I am impressed with the idea that it is the grass to combine with our Bermuda for a permanent pasture. I believe that in the winter it will take the place the Bermuda vacates at that season, and will keep some green on the land. As a meadow grass, I am not impressed with its value. The best growth I ever saw was at the grass testing farm of Peter Henderson & Co., on the Hackensack river in New Jersey. There was a fair crop of hay, but not near so heavy as several other grasses, and not more than half the crop that Italian rye grass gave on the same land. But it makes a dense sod, and will be of value for permanent pasture.

KAFFIR CORN.

This may be all that is claimed for it in droughthy Kansas, but here we can beat it far away with Indian corn; and, having Indian corn, I cannot see the need for our growing similar forage crops that are no better, if as good. Indian corn with cow-peas and soy beans form rations that are hard to beat, and while we can grow corn as well as we do, there is no room for other carbonaceous forage plants, but plenty of room for the legumes. But if we are to grow sorghum as a forage plant and peas as a forage plant, I cannot see the wisdom of growing them together, as is getting to be the fashion. The extra amount of peas that would be grown without the sorghum mixed in with it would more than pay for all the value of the sorghum, and if it is necessary to sow sorghum, sow it by itself. I can see no wisdom in mixing things along with peas,

and prefer a solid field of peas, and one sown very thick to make the finest hay. I have a piece of strong land on which the peas are now coming up where they were sown at the rate of one and a half bushels per acre. If they were sown thinly on that land the stalks would be too stout and sappy to cure well. I have a few acres of thinner land where the running peas will be planted and given more room.

ARTICHOKES.

These may suit in the farming of some, and our friend Wiggins is welcome to them, but I could never find a place for them. There is no need for feeding anything but brood sows and a boar from December to springtime on a well-ordered farm, and at that season of the year they need a better diet than artichokes. I tried once to get rid of them in a piece of rich clay soil. I suppose they are there yet, unless some one has hauled the soil all off, for no number of hogs would get them all out. There are so many valuable crops we can grow for the summer feeding of the pigs that we can afford to feed some corn in winter to the breeding animals—the only ones we should have then. Still, there may be those who find the artichoke of value to them, for a Tennessee friend wrote me lately that he never caught me wrong except on the artichoke question. I have had none for the last twenty years, and never expect to want any, though I have no sort of objection to any farmer's trying them who wishes to.

W. F. MASSEY.

IS PHOSPHORIC ACID A PANACEA FOR ALL THE ILLS OF A POVERTY-STRICKEN OR SEMI-EXHAUSTED SOIL?

Editor Southern Planter:

That eminent chemist, Justus Von Leibig, among other elementary laws, laid down the following: A soil can be termed fertile only when it contains all the materials necessary for the nutrition of plants, in the required quantity, in the proper form. An excess of any one of the leading elements of fertility, let that excess be of nitrogen, phosphoric acid, or of potash, does not constitute fertility, and by no means conduces to productiveness. In order to constitute a really fertile soil, these elementary substances must each and all be present, but they must be present in the required quantity, duly proportioned and properly balanced. One sided fertility is neither a profitable nor desirable condition for soil to be in, and the same may be said of one sided fertilization, it is neither profitable nor satisfactory.

I am the fortunate possessor of some lands that contain an excess of nitrogen. This excess works an actual injury to each and every crop planted thereon. I have found it profitable to balance this excess by liberal applications of phosphates and potash; on this class of soils the two last named substances form a complete fertilizer, and it would be utter folly to make any further application of nitrogen to these soils; it would likewise be a waste of both time and money and could not fail to actually decrease the yield.

Now, if I could find soils that were rich in potash and nitrogen, and deficient in phosphoric acid, then in that case phosphates alone would form a complete fertilizer, nothing more would be necessary. So also, if we could plant crops that would abstract from the soil phosphoric acid alone, leaving the nitrogen and potash behind, intact in the soil, and the original supply of these substances undiminished, then in that case, the use of phosphates alone, to the utter exclusion of potash and nitrogen, would be justifiable, but not otherwise.

I am pretty intimately acquainted with Southern soils, in their virgin state, and after they have been denuded of their fertility by continuous cultivation in cotton, corn, and other clean hoed crops. I feel entirely safe in saying I have never found soils of above character, nor crops that were obliging enough to do all their feeding on a single article of diet, let that article consist of nitrogen, phosphoric acid or potash. I don't believe I ever will, and I also don't believe any one else will either.

Take the single Southern product—cotton—and we see that there is an annual production of over 4,000,000 tons of seed, to say nothing of the lint. This seed removes from the soil 125,000 tons of nitrogen, worth as fertilizer $37,500,000. It also removes from the soil 26,800 tons of potash, worth as fertilizer $3,744,000. Who has the hardihood, the utter disregard for veracity and lack of self respect, to assert that the application of phosphates alone will be found all sufficient, or that it can be made, even in the most remote degree, to supersede or take the place of the other leading elements of fertility? Echo answers who? As some of our phosphate stricken friends seem to have phosphates on the brain, and can see no virtue in anything else, nor any necessity for anything else, and who, we suppose, are in blissful ignorance of the fact that there is a soil that contained an actual excess of phosphoric acid; and furthermore, that this same excess of phosphoric acid, instead of causing that self-same soil to be immensely productive, rendered it absolutely sterile, barren and unproductive. I subjoin two tables, one of fertile and productive soil, and another of a sterile and unproductive soil, for comparison:

Fertile Soil.	*Sterile Soil.*
Nitrogen, 16,000 lbs.	Nitrogen, 1,750 lbs.
Phosphoric acid, 4,000 lbs.	Phosphoric acid, 5,555 lbs.
Potash, 8,000 lbs.	Potash, 3,045 lbs.
and of	Lime, 2,275 lbs.

Above amounts of fertility were found stored up in the surface foot of an acre of ground; in the fertile soil by Prof. Roberts, and in the sterile soil by Prof. Hilgard.

Now, if phosphoric acid is the panacea for all the ills of a poverty-stricken or semi-exhausted soil, as one might assume to be the case from its over zealous, though oftentimes mistaken advocacy, by its (of course disinterested?) friends, then the tables should have been turned, the sterile soil should have been by far the more productive and fruitful of the two for the reason that it contained 1,555 lbs. more phosphoric acid than did the fertile soil.

Comment on this would seem to be idle, superfluous and time wasted, but it will at least furnish food for thought, and that is all I hope to accomplish by the present article; let the soil tiller do his own thinking, each for himself, and not trust too implicitly on the other fellow's knowledge box; if he does he is liable to get left, and with the bag to hold, and the bill to foot.

I am perfectly willing, and even glad, to accord to phosphoric acid all that is its due, but no more. I use it, and use it freely, but not to the exclusion of other plant foods that are equally important, equally indispensable, and equally valuable.

It is my earnest desire and ambition to keep an excess of plant food over and above the needs and requirements of the crop planted in the soil all the time, but I have not the slightest desire to have an excess of any one single element of fertility above another. I have both seen and felt the evil results of such mismanagement more than once in my life. "A burnt child dreads the fire."

The making of maximum crops at a minimum expense is the goal each and every farmer is striving for, and now the important question arises, Is the prevalent practice of using phosphates alone (on account of their comparative cheapness) wise? and is it best calculated to insure the raising of maximum crops at a minimum expense? or of raising maximum crops at all, regardless of expense? I believe not, and what is still more to the point, I know better.

Burgess, Miss. G. H. TURNER.

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter.*

THE GERMINATION OF SEEDS AS AFFECTED BY CERTAIN CHEMICAL FERTILIZERS.

Bulletin No. 24, U. S. Department of Agriculture, Department of Botany. Prepared by Gilbert H. Hicks.

Editor Southern Planter:

The attention of those who have not examined this publication is respectfully invited to the very important experiments presented. The immense expenditures, the uncertainty of adaptation to various seeds, the quantity and mode of application, and the risk of obtaining the best results, necessitate a more careful examination and study of the varied conditions and subjects involved in plant production. The varied results from the use of commercial fertilizers are usually attributed to bad goods and the manufacturer censured, when often it may be an ignorant application in undue proportions in contact with the seeds.

On page 15 of the Bulletin the author says: "Summing up the results obtained from these experiments, we may safely conclude:

"1. That muriate of potash and sodium nitrate used as fertilizers in strengths of 1 per cent. or more are detrimental to the germination of seeds, whether applied directly or mixed with the soil.

"2. That fertilizers composed of phosphoric acid or lime are much less injurious to germination than sodium nitrate or muriate of potash, and if not used in excess may be harmless.

"3. That commercial fertilizers should not be brought in direct contact with germinating seeds.

"4. The effect of treating seeds with chemicals before planting is no index to the action of those chemicals when applied as manure to the soil.

"5. That the chief injury to germination from chemical fertilizers is inflicted upon the young sprouts after they leave the seed coat and before they emerge from the soil, while the seeds themselves are injured only slightly or not at all.

"6. It is highly improbable that potash, phosphoric acid, nitrogen, or lime, used as fertilizers, actually favor germination."

Fishersville, Va. ABSALOM KOINER.

[In sending us the foregoing, Mr. Koiner well remarks: "The extract appears to me to be a pointer to the cause of much of the disappointment of planters, and often of litigation and many thousands of dollars loss. We appear yet to be in the vestibule of the great laboratory of nature and art. What will the result be when this stupendous subject is fully understood and developed?"—ED.]

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Harrow for Cultivating Corn, Canada Peas and Bromus Inermis.

Will you kindly say through *The Southern Planter* what kind of harrow is best to harrow corn on red clay upland farm? Will the old fashioned square straight tooth drag harrow do? Or will it do at all to harrow upland corn; I never tried it. Will Canada peas and bromus inermis do well in this part of Patrick county?

Patrick Co., Va. J. W. TATUM.

On land of the character named the slant tooth smoothing harrow will be useful for loosening the crust at germination time, but something of a different nature is needed generally. The weeder and the smoothing harrow are both useful on smooth, mellow land in the early stages of the growth of corn; but in our experience in the cultivation of the red clay uplands of Virginia and North Carolina, these tools are of little use there, especially if the surface is much infested with rocks. In land of that nature the best early working for the corn is a double coulter run deeply alongside the rows. Then let all the after cultivation be shallow and level. Above all, on rolling upland, get the corn down in the ground well. I always run out the furrows with a plow and then run the corn planter in these furrows. Then the levelling of these furrows is nearly as much earth to the corn as some who hill up give it, and the corn stands dry weather better. And yet all around here on the dry red hills I see men planting corn on elevated beds as they still do cotton. Of course these men bar off and hill up and do all sorts of things that there is no need for if the corn was planted right, and they make little crops at heavy cost for cultivation.

Canada peas will do well in Patrick county if sown as early as the land can be worked. Here they do best sown in the fall. Of bromus inermis I am not ready to speak with confidence. The only trial at this station was a failure. I have seen it looking well in New Jersey, but I feel sure that it will not be of much value as a meadow grass. It may do very well to supplement our Bermuda in pasture and keep up something after the Bermuda is brown in winter. Then, too, as it has the same creeping habit, it may invade lands where it is not wanted. Experience with Johnson grass should make farmers cautious about new grasses till their character is well known.

W. F. MASSEY.

German Clover and Peas.

Will you please inform me in the next issue of *The Southern Planter* whether German clover will live under black peas, if sown together the last of June? I want to cut the peas for hay and let clover stand for a winter cover.

King and Queen Co., Va. P. H. BURTON.

It think it extremely doubtful. The peas would probably smother the clover. I have had fine success by sowing on pea stubble after cutting without preparation, and once in a lot of peas that were to die on the land the clover seed were sown among the peas just before the leaves began to fall, and there was a fairly good stand. June is too early to sow the clover. I have had fine success from sowing clover seed among corn at last working in July. This was red clover, and I suppose crimson clover would also succeed in the same way. In fact, I have had a letter within a few days past from a farmer in East North Carolina, telling of his great success with crimson clover sown last summer among corn. You will have plenty of time to get a stand of clover after the peas are cut.

W. F. MASSEY.

Preparing Grass Sod for Corn—Preparing Land for Strawberries.

Will you kindly answer the following through *The Southern Planter:*

1. I have 12 acres orchard grass sod that I want to put in corn next year. I will cut orchard grass seed on this land this year. I would like to know what you would think of the plan of plowing this land soon after harvest, sowing thickly in rye in August or September, grazing the rye through winter up to April 1st with sheep; then take sheep off, and let rye grow till latter part of April; then replow, turning under whatever growth the rye has made, liming with about 10 bushels rock lime, ground and drilled on the land, and then plant in corn very soon after?

2. Would a half acre that I desire to plant in strawberries next year do well, to sow latter part May this spring in black peas, turn under peas in early fall, lime it pretty well after plowing down peas, and plant in strawberries next spring, and use an additional fertilizer—pure bone meal—at time of planting strawberries?

I will be very glad to hear your opinion on the above plans, or any further or different suggestions or advice you may give me.

Rockbridge Co., Va. H. E. MOORE.

Your letter came too late for an answer in the May number, and by the time you get this the orchard grass will be cut, or should be, as it is ready to cut here now (May 7). You will be doing better for the land and for the future corn crop if, as soon as the grass is cut, you turn the sod and sow the land in cowpeas. Then cut the peas for hay and get the land ready and sow rye and crimson clover. If the clover does not succeed you will still have the rye. By sow-

ing the peas early in June, you can cut the hay in August and have the land ready to sow rye and clover the last of August or early September. The peas will give you a heavier growth of rye and clover, especially if you give the peas a dressing of acid phosphate.

On the piece to go into strawberries the peas will be all right, too. But these, too, I would cut for hay and plow the stubble and set the strawberries in early September, after giving the land a good coat of complete fertilizer. This will give you a partial crop of strawberries next spring, and if kept in good order a large crop the following year, when they should be plowed under, and in the meantime another bed planted in the previous fall to take their place. Worked in this way you will always have one strawberry bed with a partial crop and one with its full crop, and this annual planting will be far better than trying to keep an old bed clean.

W. F. MASSEY.

Crossing Sheep.

Will you or some of your readers give advice and experience in the columns of your valuable journal on the following to a new subscriber?

Keep, say, 60 grade Southdown ewes, breed them to Shropshire buck for lambs to drop in February and to be sold in June. As the flock only averages four and a half (4½) pounds of wool, it looks as though one who expects to make sheep one of his mainstays in farming should endeavor to have a flock that will give a higher average in fleece. A party in a Northern agricultural paper advises to breed to a French Merino ram, saving the ewe lambs of the second cross with the Merino and breed them to a Shropshire buck, and that this will give a heavy fleece and as good or better lambs for market than those raised from the original flock. Your advice and experience on above would greatly oblige a NEW SUBSCRIBER.

Rappahannock Co., Va

We have had no experience in the use of a French Merino buck on Down sheep, but have seen several reports in which such a cross is said to have resulted well. A subscriber of ours is now breeding Down bucks on Rambouillet ewes in this State, and we expect to have a report from him shortly giving his experience. We should anticipate both increased size and increased weight of fleece from the cross suggested, but doubt whether the lambs would be much improved for the early spring market.—ED.

Fertilizer for Cow-Peas—Rye as an Improver.

You have frequently advised the use of a mixture of 300 lbs. acid phosphate and 100 lbs. of muriate of potash to the acre following the sowing of cow-peas. I am on a 50 acre farm, and sow from 40 to 50 bushels cow-peas every year. Will you be kind enough to answer the following in your June number?

1. I have about 12 acres of worn sandy soil, with red clay subsoil in oats, which I am going to follow with cow-peas. Shall I apply the mixture of acid phosphate and muriate of potash on top after the peas are harrowed in, or harrow in with the peas?

2. I think acid phosphate is sold in more than one form; if so, what shall I ask the manufacturer for, to be able to get just what I want, and what is the acid phosphate usually worth per ton?

3. Is sowing of rye in the fall much benefit to the soil? WM. S. NELSON.

Accomac Co., Va.

1. Sow the fertilizer on the land and work in with a disc or spading harrow, if it is not intended to plow the land before seeding the peas. If the land is plowed, sow the fertilizer after plowing, run over with a harrow, then seed the peas, and harrow in or work in with a cultivator. The fertilizer should not come in close contact with the seed.

2. Ask for a plain acid phosphate—12 to 14 per cent. We do not know the present price, but probably, say, from $12 to $14 per ton in single ton lots; less by the car load.

3. The only benefit from seeding rye is the binding of the soil together by the roots, thus preventing washing, and the growth of some vegetable matter to add to the humus in the soil.—ED.

Curing Sand Vetch for Hay.

Please advise me through next issue of *Planter* the best way to cure sand vetch for hay; also if it is good to feed while green.

Caswell Co., N. C. C. D. INGRAM.

I have never cured any large quantity of vetch and none at all of the sand vetch, but all the vetch family I have had anything to do with cure with remarkable ease and rapidity. If cut on a sunny day and cocked on that evening, the hay should be in condition to go into the barn the next day. The same test that I apply to peas and clover would work all right with the vetch I am sure; that is, to take a bunch in the hands and give it a hard twist, and if no sap can be seen running to the twist, it will do to go in; but, like clover and peas, they should be let alone after putting in and not be turned to cool when heating.

W. F. MASSEY.

Scotch Broom—Irish Potato Fertilizer.

1. Will you, or some reader of the *Planter*, kindly tell me, in your next issue, the quickest and best method to eradicate the "Scotch Broom." I have found it impossible to do so; have tried grubbing and burning; have found burning the best method where there is broom sedge or other high grass growing with it, but after grubbing, and then cultivating the land, the Scotch Broom seems to come up with renewed vigor, thicker, and heavier than ever.

2. Will you also inform me if hen house manure is

beneficial to Irish potatoes, and will make the crop more prolific.

Albemarle Co., Va. X.

1. We have had no experience in eradicating Scotch Broom, but, from our knowledge of its persistency of growth, should assume that it will require to be grubbed out to be destroyed. We should be glad to hear from some of our subscribers on the subject.

2. Hen-house manure is mainly valuable because of its richness in nitrogen. The Irish potato requires for its best success a fertilizer rich in potash, and with only a moderate percentage of nitrogen, say about 5 per cent. Hen-house manure may be used as the source of the nitrogen for the Irish potato crop, but should have a large admixture of muriate of potash, and phosphate with it.—ED.

Killing Sheep Sorrel.

Will salt that has been used for pork packing kill sheep sorrel, and how and when should it be applied? Your answer through the *Planter* will oblige

Rockbridge Co., Va. A SUBSCRIBER.

Yes. If applied in sufficient quantity it will kill vegetation of any kind.—ED.

Cow Sucking Herself.

Would you, in the next issue of your valuable paper, inform me how to prevent a cow from sucking herself?

Charleston, S. C. A NEW SUBSCRIBER.

In the February and March issues of *The Planter* for the current year, there are two or three different methods of preventing sucking described.—ED.

Period of Gestation of Domestic Animals.

The average period of gestation in the domesticated animals is as follows: Mare, 345 days; cow, about 286 days; sheep and goat, 149 days; pig, 119 days; bitch, 60 days; cat, 55 days.

The period of heat varies considerably, but may be said to be about as follows: Cow, every 19 to 20 days, when not giving milk or in calf; mare, 21 to 28 days; other animals, usually in spring and fall, September and February being the most frequent months.

E. P. NILES, *Veterinarian.*

Experiment Station, Blacksburg, Va.

Seeding Clover and Grass in Cow-Peas.

1. Some time ago, we saw it advertised by some seed-house that clover seed sown with broadcasted peas would do well. We are going to sow 75 acres of peas this year, commencing about May 25, and would like to put clover and grass seed in at the same time. We do not intend to cut the pea-vines, but will harvest the peas with a new horse-pea harvester, provided it works O. K.

Will you or some reader advise if clover and grass sown this way is a success? It strikes us it might do.

2. The harvester we are going to use on peas gathers only standing varieties, and is called "Dixie Pea. Harvester." Is manufactured by Wm. Clores Sons, of Rising Sun, Indiana.

If any reader of your paper has used or heard of this machine, we would be glad to have their ideas of its usefulness as a harvester. A reply in your June *Planter* will be of use to many of us.

J. F. CRUDUP.

1. In this issue will be found a reply by Prof. Massey to a very similar question. We entirely agree with his opinion. We have had a case reported to us where the experiment succeeded, but the peas were not a heavy crop. Possibly even if the pea crop was a good one, and was cut before it fell down too closely on the land, the clover and grass might survive the shading, but the experiment is a risky one.

2. We do not know any one who has used the Pea-Harvester, but we have seen very satisfactory reports as to its success. We shall be glad to hear from any one who has used it, as if a success it fills "a long felt want."—ED.

Nest Boxes for Birds.

In the March issue of the *Planter*, B. A. H. asked what nest boxes should be put up for wrens, swallows, &c. In the May number of the *Ladies' Home Journal*, page 19, Dan Beard tells how to make a backyard aviary. This would probably help B. A. H.

Pittsylvania Co., Va. H. E. ANDERSON.

Goats and Sheep.

1. I want to raise goats for pets, and for children to drive, etc. I think the largest goat would be the best for this purpose. How do you think the Angora goat would do?

2. Where could I get the best breed to start with? I would like to avoid long distance on the cars.

3. I want to raise sheep, and I want the best kind to start with if there is any difference in them. Some ewes have two lambs at a time, and some lamb twice a year. When they raise lambs twice a year, is the wool anything like a crop? I want good wool, and two lambs every time. Can you tell me where I can get some to start a flock with?

4. Can you tell me where I can find the best bee-house? I want to protect the honey-makers, and not kill them, as some people do.

Halifax Co., N. C. F. D. WILSON.

1. In this issue you will find an article on Angora Goats, and will find them offered in the advertising columns. They make good children's pets for driving.

2. The Down and Dorset breeds of sheep are usually the most prolific breeders, but no breed is certain to produce always twins or lamb twice in a year. The Dorsets will often lamb twice a year, and we have known Merinos to do the same. You will find all these breeds offered in our advertising columns. The Down breeds have a good, heavy fleece. We prefer the Down breeds as producers of lambs and mutton, but the Merinos are great wool producers.

3. Write A. I. Root Co., Medina, Ohio, for their catalogue of bee supplies.—ED.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

The work of cultivating the growing crops should be closely attended to in order to keep up vigorous growth and keep down the weeds. The more quickly vegetables are grown the tenderer and more choice they are. Never allow the land to become crusted over. Where crops have received a check in their growth by the cold late spring, a light dressing of nitrate of soda applied alongside the rows previous to cultivation will start them off again. From 50 to 100 lbs. to the acre will be sufficient for this purpose.

As the crops become ready for market or use, see that they are gathered and either used or shipped at once. Ship in new clean ventilated packages, so that they may come on the market fresh and crisp. They should be cool and dry when packed.

Plant successional crops of lima beans, pole beans, sweet corn, and cucumbers for pickles. Tomato plants, egg plants, and peppers may yet be set out. Sowing of salsify should be made. These will make better roots than seed sown earlier, as this crop grows best in cool weather. Celery seed should be sown. The seed bed should be made very fine and rich. Sow the seed thinly and rake in, and cover with mats or brush to shade and keep the bed moist. The seed germinates slowly. When the plants begin to appear, remove or raise the mats, and finally, when the plants are fairly above ground, leave bare. Keep the weeds down by frequent weeding, and thin out the celery plants so that they shall not stand closer than two inches apart each way. The thinnings may be set out in other beds to grow into plants for setting out in the rows. It is soon enough to set out celery plants in August. If the plants show a tendency to become spindling, clip off the top of the leaves and thus encourage a stocky growth.

Broccoli seed may be sown towards the end of the month for planting out in August. This crop should be more largely grown as it is a fine vegetable. It makes a head like a cauliflower in the cool fall months. It is as easy to grow as cabbage, and should be treated exactly like cabbage.

Onions should be pulled as they mature and be left on the beds to dry. When dry, cut off the tops and ship at once, as the bulbs will not keep like Northern grown onions. Usually, Southern grown onions sell well on Northern markets before the Northern grown crop is ready.

Onion sets should be pulled as they ripen and be well dried, and then be stored on shelves in a cool, airy shed for planting and shipping in the fall.

Strawberry beds more than a year old should be plowed up as soon as the crop has been gathered, and the land be well worked and seeded to peas or German clover. Beds planted last fall or this spring should be kept clear of weeds and encouraged to make growth. If it is desired to save an old bed for another year's fruiting, though they rarely do as well as a newly planted one, burn off the old leafage and weeds and then run the plow between the rows, narrowing the rows down as much as possible to single plants, and clean out the weeds and surplus plants in the rows and give the bed a dressing of fertilizer rich in potash, say, 5 per cent. acid phosphate and 7 or 8 per cent. potash, and work in with the cultivator.

See that insect and fungous pests are closely watched for and the proper remedies applied. Refer to the Spray Calendar in our March issue for instructions.

Where peaches, plums, apples and pears are too thickly set on the trees, it will pay well to thin them out and thus secure finer fruit.

FRUIT PROSPECTS.

We hear excellent reports as to the fruit crops from all over the country. The indications are that we are going to have a great fruit year. We hope to publish reports from some of the leading fruit growers in this State in our next issue.

APPLE PRODUCTION IN VIRGINIA.

The Virginia Experiment Station has for several years tried to secure full statistics as to the production of apples in this State. The object was to ascertain not merely the total production, but the sections in which the business of apple growing is most successfully followed. With the co-operation of the transportation companies the Station secured fairly accurate returns of shipments for 1897. In 1898, only partial returns were secured. In 1899, full reports were secured from nearly all the companies. The returns for 1897 show that 281,889 barrels of apples were shipped over the various roads in that year. In 1899, the total of all shipments was 212,485 barrels. The counties in the Tidewater section of the State shipped 2,257 barrels. The counties in Middle Virginia ship-

ped 8,918 barrels. The counties of Piedmont Virginia shipped 67,056 barrels. The counties in the Valley shipped 131,476, and the counties in Appalachia shipped 2,777 barrels. In Tidewater, Caroline county, shipped the largest quantity, 1,275 barrels. In Middle Virginia, Louisa shipped 1,378 barrels, and Orange, 4,529 barrels. These two are the only counties in that section shipping over 1,000 barrels. In Piedmont Virginia the counties shipping over 1,000 barrels are: Albemarle, 28,982; Amherst, 2,581; Bedford, 2,701; Culpeper, 7,754; Fauquier, 11,451; Franklin, 1,136; Loudoun, 3 907, and Nelson, 7,801.

In the Valley of Virginia the counties shipping more than 1,000 barrels are: Augusta, 23,340; Botetourt, 3,422; Clarke, 5,802; Frederick, 37,213; Montgomery, 1,868; Page, 11,565; Roanoke, 4,202; Rockbridge, 1,077; Rockingham, 8,959; Shenandoah, 5,724; Smyth, 3,797; Warren, 13,205; Wythe, 10,321. In Appalachia the only county shipping over 1,000 barrels is Giles, with 1,950. If to the quantity shipped be added the quantity consumed where grown, or there converted into dried apples or cider, it will be seen what an important factor the apple is in the farm economy of the State, and yet the quantity now produced is not a tithe of what we might produce, and produce profitably, if only due attention was given to the planting and care of orchards. The Experiment Station is to be thanked for having brought this feature out so prominently by having secured the returns from which we have quoted.

THE ENGLISH PEA LOUSE.

This pest is again doing serious injury to the pea crop in the Tidewater sections of this State and Maryland, and we regret to state that it is not confining its ravages to the English pea but is injuring clover and cow peas in other sections. Professor Johnson, the entomologist of the Maryland Experiment Station, has discovered a fungous disease infesting the lice in some sections which is death to the louse, and which he is spreading about amongst the pea growers in his State. This disease is like the chinch bug disease which has done much in some sections of the West in reducing the damage done by the chinch bugs. It is introduced by distributing infected lice amongst the crops. These inoculate the healthy lice and thus cause their death. Farmers should not, however, wait until this disease comes along, but should be up and doing, using the soap remedies advised in our April issue or following Professor Johnson's advice to have the lice brushed from the vines with light cedar boughs and then bury them by cultivation between the rows. He has found this practice very effectual in reducing the injury done. Clover and cow-peas infested with the lice should be cut at once or be turned down.

THE CROP PEST LAW.

The Legislature of Virginia at the session recently closed passed an act largely extending the scope of the work of the Inspector appointed under the San Jose Scale law of 1896. Under this new law a Crop Pest Commission is created to deal with the general subject of injurious insects and plant diseases, and an appropriation of $1,000 per year in addition to the $1,000 per year appropriated under the San Jose Scale law is made available for the work. Under the terms of this new law the Board of Control of the Virginia Agricultural Experiment Station met on the 12th of April, 1900, and organized as a Board of Crop Pest Commissioners with Dr. J. M. McBryde as Secretary of the Board. The Board appointed William B. Alwood, State Entomologist and Pathologist, and J. L. Phillips and H. L. Price assistants. The following insects and plant diseases are declared to be dangerously injurious, and by order of the Board should hereafter come within the scope and operation of the Crop Pest law:

Insects—San Jose scale.
Woolly Aphis—in nurseries only.
Fungi—Peach Yellows.
Black Knot of Plum.
Fire Blight of Pear and Apple—in nurseries only.

All persons whose crops or orchards are infested with any insect pests or fungous diseases of any kind should at once communicate with William B. Alwood, State Entomologist and Pathologist, Blacksburg, Va., and obtain from him copies of the law, and the rules and regulations framed thereunder, and advice as to the course to be taken. If these pests are to be effectively controlled it is essential that they be brought to the notice of the Crop Pest Board as soon as discovered so that whatever steps are necessary to be taken may be taken without delay.

IN THE GARDEN.

Editor Southern Planter:

As the season advances and the press of farm work increases, the garden is more than likely to suffer from neglect; and yet, if you will but stop and think a moment, you must admit that nothing on the farm pays so well for the time devoted to its care. If your garden has been properly laid out, so that it can be worked with horse and cultivator, an hour or so each week will suffice to keep everything in first class condition, and the time will never be missed from the crop. Use a fine tooth cultivator or harrow most of the time, for a tool of this kind can be run very close to the young plants, and will save much hoe work.

Snap Beans.

Among the vegetables which should occupy a prominent place in the farm garden is the snap bean, both bunch and pole. Repeated plantings of this bean should be kept up to insure a continuous supply. The new Stringless Green-pod, Valentine, and Best of All, are good bunch varieties, with the Kentucky Wonder and White Creaseback for pole. One quart of the bunch beans will plant one hundred feet of drill, or about two bushels, one peck to the acre, where the rows are two feet apart. The pole beans can be planted at the rate of one quart to 150 hills, in rows four feet or five feet apart, and hills two feet in the row, training two hills to a pole. There are a number of good wax varieties, but we much prefer the green podded sorts, they being more hardy and productive, also better sellers.

The culture of beans is very simple, and comparatively little manure or fertilizer is required. This should consist principally of potash and phosphoric acid, as the bean belongs to the leguminous family, and can obtain a large portion of its nitrogen from the air. A fertilizer analyzing: Ammonia, 3 per cent.; phosphoric acid, 7 per cent., and potash, 7 per cent., is about right for this crop—applied at the rate of 500 lbs. per acre. To prepare a fertilizer which will analyze as above, take 100 lbs. nitrate of soda, 450 lbs. cotton-seed meal, 1,200 lbs. acid phosphate, and 250 lbs. muriate of potash, to make a ton, or 1,700 lbs. bone meal and 300 lbs. muriate of potash, will also give a similar fertilizer. Care should be taken to have the soil fine and the fertilizer well mixed in the row. I like to prepare land, apply the fertilizer, put two furrows on it, and let it stand about two weeks before planting, then plant as soon after a rain as the land will do to work. The top of the ridge can be knocked off with a board, and the seed put in with a drill; or the ridge can be opened with a small scooter and the seed dropped by hand, covering about two inches deep. In this way you may be almost sure of getting a good stand. If, however, there comes a heavy rain after planting, and a crust forms over the seed, it should be broken with a harrow or rake, else the beans will be slow to come up, and an inferior stand will be the result. When cultivating, be careful to plow and hoe your beans only when the vines are dry; otherwise, they will turn yellow, and the crop be greatly damaged.

Lima Beans.

Of the lima or butter beans, the small bush varieties, such as Henderson's Bush Lima, succeed best in the South. There is also the Small Lima (Sieva), a pole variety, which does nicely. I have seen this bean completely hide a garden fence in Florida and furnish a continuous supply of beans all summer. Lima beans should not be planted until the weather is thoroughly settled and warm, otherwise the seed is likely to rot in the ground. Their culture is similar to that of the snap bean, with the exception that they require very much richer land for best results, and I therefore use double the quantity of fertilizer for them than I do for the snaps. I find these beans very profitable for the home market, and last year I sold $100 worth from one-half acre on land that had grown a crop of strawberries in the spring before the beans were planted.

Battle Hill, Ga. F. J. Merriman.

FLOWERS.

Editor Southern Planter:

I don't see how you can face your many fair readers or escape from a broken head by a broomstick well laid on by some lover of flowers. You have everything that's good in the *Planter* for the farmer, the horticulturist, the stock grower or poultry fancier, and lo! not a word for *Flowers*. Now, some of your masculine readers love flowers, too, if only for the sake of the *dear creatures*, and we don't like to see their pleasure ignored by not a word in the *Planter* on the chief subject of their hearts at this season.

When I was a little lad, I was taken into Abernethy's flower garden and greenhouse, which once stood where Monroe Park, Richmond, is now located. I was so fascinated by the beautiful array of blooming plants that I resolved to be a florist, and have retained my love for the beautiful posies ever since. My first attempt was with a simple hot bed—sowing the seed in small boxes filled with sand and loam and placed on the manure which gave them bottom heat and quickly brought up the seedlings. I then became more ambitious, and made a lean-to about ten feet long and six feet wide, with a walkway on one side and high enough to stand erect; on the other side, a four-foot bench, under which was filled with manure, giving plenty of heat for ordinary plants. It did not cost me ten dollars, and the pleasure of working in it and the quantity of vegetable plants and flowers I grew, fully compensated me for that expense. But the love of flowers grows upon one amazingly, and with a suggestion by some of my friends to make it profitable as well, I enlarged my lean-to by adding another span, giving double the width; for heating this, I ran a brick flue through the centre, with an ordinary wood furnace at one end. In this house I not only raised any quantity of flowers and vegetable plants, but also early lettuce, cucumbers and tomatoes. Such was my success that the next season I extended the house to thirty feet and twelve feet wide, with the addition of

a small-sized hot water boiler and a circuit of four-inch pipe underneath the bench, which, with the flue, gave a temperature of 60° during winter. Thus my youthful prophetic vision was realized. I raised in this house some of the tenderest tropical flowers, and sold enough each year of vegetable and flower plants to pay for all expense of heating. This was the extent of my florist venture. Had it been in or near a large town or city, the profits would have been much larger. It was a source of great pleasure to my family and neighbors, and is what every farmer should have—a simple structure in which the girls and boys could delight, and also gain instruction in botany. The growing of flowers and beautifying the homesteads should be encouraged, and I hope the *Planter* will give a corner to the fair sex in their love for the beautiful pets, and also give simple directions for their culture.

DANDELION.

Albemarle Co., Va.

[It is not because we do not love flowers that we have not devoted more space to the subject, as we are and always have been enthusiasts in flower growing. All our spare moments are devoted to endeavoring to make our garden and yard a paradise of flowers even in the city, and in this we succeed. Our experience has been very much that of our correspondent. We started with a cold frame and progressed to a hot water heated house. We have, however, not pushed the subject in the *Planter* because of the indifference of our readers. It has been a surprise to us to find how little interest is taken in the subject in the South. No one, or certainly very few, knows one plant from another. Neither boys nor girls seem interested in the subject or are willing to forego amusements of other kinds for the quiet pleasure of working in the garden. They go to the florists for the flowers they want for occasions of joy or woe, and rarely do we find them attempting to beautify their homes with the growing plants. In this respect the rising generation is way behind the older people. They learned to love flowers because to have them they had to raise them, and they thus became attached to them and studied the subject. Now they are bought ready grown and little appreciated. We wish that it were otherwise, and are ready to help the movement if our readers will second our efforts.—ED.]

NORTH CAROLINA THE FRUIT STATE.

Editor Southern Planter:

The contour of the Old North State, its soil and climatic conditions, render it the most favorable locality in the United States for growing fruit. The higher lands for apples, pears, peaches and grapes, the next lower section for grapes, peaches, pears and the small fruits, while the lower country is eminently adapted to grapes, peaches and small fruits, especially strawberries.

Very much of the country is forbidding to one who has always lived upon a prairie, but when the soil is once carefully studied, it will be found to contain the warm, friendly conditions so favorable to several of the best paying crops now produced. Among these are strawberries, string beans, garden beets and asparagus. In no soil do pindars, sweet potatoes, asparagus and peaches better flourish.

These lands are low in price, but there is no place where land can more easily be made fertile by the free use of the cow-pea and soy beans and mellilotus, all of which take to the warm sandy nature of the soil with avidity.

These lands only need to be carefully terraced and cultivated around the slopes to prevent washing, and the reward to the cultivator is most ample. Of course, the same careful study of the nature of each crop is required, and no one should expect to grow strawberries without renewing the bed each two years at least, or asparagus without liberally fertilizing each year; nor should any one expect peach trees to last fifty years; the peach tree is the heaviest yielder known, and requires renewing each five to seven years, and to be cared for, cultivated, fertilized, watched and tended. In fruits no State is more sure or more promising for the future than the old North State.

New York. S. S. B.

SELF-STERILITY OF GRAPES.

Like pistillate strawberries, many varieties of grapes need cross-fertilization. Standing alone, these varieties fail to set fruit, or give poor yields of imperfect bunches. To get perfect fruitage, these grapes must be mingled with varieties which not only bloom at about the same time, but which also are strongly self-fertile. This last point—that the pollinating variety must be strongly self-fertile, not merely a *different* variety—has been brought out by last season's experiments at Geneva.

It will not do to mingle vines of Vergennes, Barry, Eumelan and Salem, expecting them to fertilize each other; for, though they bloom at about the same time, all are self-sterile or imperfectly self-fertile; and such varieties cannot fertilize each other better than each fertilizes its own blossoms. Neither will it be safe to depend upon Clinton or Ulster, Bailey or Carman, to fertilize Brighton. Though these four varieties are all good fertilizers, Clinton and Ulster bloom before Brighton does. Bailey and Carman later.

The results of careful experiments along these lines are announced in Bulletin No. 169 of the New York Agricultural Experiment Station, and lists of grape varieties classified by degree of self-fertility and period of bloom are given. This bulletin should be in the hands of every vineyardist, and will be sent on application to the Station. Your name and address, and the number of the bulletin, on a postal card, will be sufficient.

Mention the *Planter* to your friends.

Live Stock and Dairy.

ANGORA GOAT HUSBANDRY.

Hints for Starters.

Editor Southern Planter:

There can be no disputing the fact that the only animals which have held their own fairly well, through out the United States, during the entire long depression in the live stock market, are Angora goats, and it is therefore no wonder that the enquiries, especially from entire outsiders, are constantly increasing, nor can there be any doubt about it, that no class of stock has fairer prospects.

It is quite evident that through the last decade Angora goat husbandry has been changing from being a hazardous speculation to the state of a well-established honest industry, and ever since the well known Mohair expert and commission merchant, Mr. W. R. Payne, of New York, had the assurance from English correspondents that some of the Mohair raised in Oregon, New Mexico, and Texas, would bring in England from 38 to 40 cents, or as much as the very best Turkish hair, the proof is furnished that we can rival the Cape as well as Turkey.

Let me give here a few figures which will elucidate this point:

During the last eleven years, the production of Mohair at the Cape of Good Hope has fluctuated between 9¼ and 12½ millions pounds. In Turkey, the fluctuations are much larger. I find the production of 1886 to have been nearly 10 millions pounds, in 1887 only 5⅝, in 1889 again 8¼, and in 1890, however, only 4 1/10 millions pounds. Then the production rose gradually again to 8 millions in 1893, but dropped to 7 millions in 1894; then it rose again to 11 millions in 1895, and again sank fully 6 millions to 5 millions; but from then it gradually rose to 10 millions again last season. This, to be sure, is very irregular, and shows plainly that though the Province of Angora has most likely the best climate for the individual animal, Asia Minor at large must be considered as propitious for as regular a supply of Mohair as would be many, if not most, of the States of our Union, where only 800,000 pounds were produced last year, of which, however, about one-third is either too short or too coarse to be of much value.

The demand of our manufacturers is now 1½ million pounds per year, and increases steadily; and there is nothing in the way of this country's manufacturing Mohair goods, not only for home consumption, but for the world at large, except the lack of Mohair and too low a grade of our stock, owing to an insufficient importation of new blood.

The number of Angora goats varied between 2 and 3 millions in Turkey and 2½ and 3 millions at the Cape. In the United States, the industry has been gradually increasing, slowly, it is true, but steadily, during the last 20 years, and we have to day over half a million of shearing goats; and there is no reason whatever why we should not have ten times or even twenty times that number, and, shearing each, over twice as much Mohair—except, again, on account of the deficiency of good new blood, which can easily be imported.

However, the new impulse given to this industry, the inquiries and purchases of outside capitalists, together with the war in South Africa, which has now fully the appearance of not only being a heavy blow to the husbandry at the Cape, but really to result practically in its entire destruction, will certainly have the immediate effect of driving up the Mohair market next spring or summer beyond all credence, and make Angora goat husbandry on a larger scale a fixture this side of the ocean, and at the same time one of the most profitable investments, both in the United States and Asia Minor.

It may, therefore, be in the interest of many of your readers to give them a few points about the husbandry and what a party engaging in it has to expect if he goes to work in the right way.

I often receive letters asking information of usually so vague a character that it is entirely impossible to give a half way satisfactory answer. The ordinary tenor of such letters is, "What is the price of Angora goats and of Mohair? Where can I sell the latter? How many Angoras could you raise on an acre of land? Would it be advisable for me to engage in the business? If so, please tell me all about it."

In order to make a long story short, let me say that Angoras vary in price from $1.50 to $150—Mohair 10 cents to 40 cents a pound; and of some land it takes 5 or 6 acres to feed one goat, whilst on some land one can keep 5 or 6 goats on one acre, all according to *the quality*. Whether it would be advisable for a person to engage in the husbandry would depend entirely upon his age, present occupation, and way of living, the amount of money he wants to invest, whether it is to be only as an adjunct to his present occupation, or whether he has to depend upon it for a living from the very beginning, both for himself and his family, whether he owns the land already, intends to rent it, or wants to buy it; finally, how much work he and his family are both able and willing to perform. All these are questions of the most vital importance. To one man just a few hundred dollars would give a nice

start, and could be the foundation of comparative wealth; but should a party not have more than this sum, and intend this investment to be his only way of making a living, I can guarantee him exceedingly rough scratching for five or six years. To another man not less than $5,000 or $10,000—and even more—would be necessary in order to get a right start, without being compelled to go under in his race for a living.

But all, without exception, need energy, close attention to business, and a real love for animals in general, and Angoras in particular, in order to succeed.

The farmer, whose farm contains much mountain land, would, no doubt, have the advantage. To him the industry would be entirely as an adjunct, offer the greatest chances for large profit, and the grade of goats would be almost immaterial. He would succeed with any kind. All he would have to do would be to fence sufficient land in two pastures, connect these, if possible, with his barnyard by a well-fenced lane, construct a pen and an open but entirely dry shed, drive his goats out early in the morning and bring them back at sunset—using one pasture one week, the other one the following week. If, upon their arrival at the pen, he gives them for a few weeks some grain and a little salt now and then, the goats will soon come home quite regularly, and he is rid of all bother. If he can get young pups of a strong, large kind, from a bitch crossed with a collie dog, and raise them at a kidless nannie until strong enough to follow the flock, they will soon begin to protect their charges against all kinds of other curs—two-legged or four-legged—and, with very little instruction, do the herding much better than any shepherd, and at much less expense.

On the other hand, a man who has been living on from $1,200 to $2,500 a year, cannot expect to make a comfortable living for himself and family on an investment of $1,000 or $2,000; however, with $4,000 or $5,000 he might get along even in the very first year. Let us, therefore, see what chances, with conservative figuring, a party with $4,000 would have.

He can lease for five years at about 3 cents per acre, say 7,000 to 8,000 acres of brushy mountain land, with privilege to buy at $1.50 per acre. He would have to invest for the new enterprise in three large-sized double tents, kitchen utensils, furniture, etc., $150—further, in three good general purpose mares, wagon, harness, saddles, implements, etc., $450; two cows, pigs, chickens, and provisions, $250; 625 Angora goats, at $4, $2,500; 6 bucks, $300; rent, $200; cash on hand, $150.

His income would be for the first year for Mohair about $500; second year for Mohair, $900, less three additional bucks, $750; third year, Mohair, $1,600; and sell 250 culled does and wethers, again less amount for 6 new bucks—total, $1,900; fourth year, Mohair, $2,200; 450 culled does and wethers; total, $3,300; fifth year, Mohair, $3,000; 800 culled does and wethers; total, $5,500; sixth year, Mohair, $3,500; and 1,000 culled does and wethers; total, $7,000; seventh year, Mohair, $4,000; and 1,000 culls; total, $7,500.

From then on the income would increase but slightly; yet, with good care and close attention, and if the very best bucks are used in the right way, it may finally run up close to $10,000 a year; but if the breeder would, in the fourth year, start a thoroughbred stud flock, investing each year from $1,000 to $2,000, and, if it is necessary, gradually reduce the number of his grade goats, an almost fabulous income might be secured.

I calculate here about two acres for one goat, but, on better land, a correspondingly larger number of goats can be kept.

The above figures, of course, are the gross income; and much of a breeder's net income depends upon how much or how little he intends to do of the work himself. For the first year, you need a farmer, and a good, useful man to attend the work, and the latter could be replaced by a good, smart boy of 16 or 18 years. If no pasture is to be kept, you need, for the first year, one shepherd; for the second and third years, two shepherds are necessary, and later on three or four of them, all according to the lay of the land.

The above shows that there is money in Angora goats, plenty of money, if the husbandry is only carried on in the right way, and if you only let your heads work as well as your hands. There is absolutely no reason why Angora goats should not be raised by the fifty or hundred thousand animals. All that is needed is the necessary capital and brains and business tact.

Ridgewood, N. J. G. A. HOERLE.

HEREFORDS AT AUCTION.

At the dispersion sale of the Fairview herd of Herefords at Chicago on April 17th and 18th, the record price of Herefords was broken. Dale, the celebrated bull, was sold to Mr. Graves for $7,500. Mr. Graves was the breeder of this bull, and sold him to his late owner for $1,100. That the bull was worth the price given is evidenced by the fact that five of his calves sold for the following prices: Theresa, a yearling heifer, $3,000; Sister Theresa, a calf, $1,000; Beatrice, a calf, $750; Perfection, a yearling bull, $1,300; Perfection Second, a calf, $950. Those named with three others made a total of $8,040, an average of a trifle over $1,000 each. At this sale 76 females sold for $45,330, an average of $596.45 each. Twenty bulls sold for $19,085, an average of $954.25 each, and 96 head sold for $64,415, an average of $671 each.

SHEEP IN NORTHERN PENNSYLVANIA—EXPERIENCE IN RAISING THEM.

Editor Southern Planter:

Nearly every farmer in Northern Pennsylvania keeps more or less sheep, and considers them the most profitable stock on his farm. Sheep, when well taken care of, have always been profitable. When I was a boy there were two rules for letting out sheep, the one was to double them in four years. Money lent at 6 per cent. requires over 16 years to double the investment. Money in sheep, let to a good man, doubles in one fourth of that time, and if the good man was a good shepherd, he could make more than the owner of the sheep. My father had 40 sheep let to be doubled in four years, and when the time had expired the lessor sent word that the sheep were ready, and my father sent a boy and myself to bring them home. The exact number were shut up in a stable, and were a rather undersized, homely lot. There seemed to be more scalawags than there ought to be in 80 sheep. No others were to be seen about the barn or in the fields, and I felt sorry for the man who apparently had only been able to double the number taken, and had received nothing for his trouble but the wool. We learned, however, that he had kept a fine lot of more than a hundred out of sight, and sent my father the cullings of the flock. It should be stated that sheep let to be doubled in four years had to be principally ewes. The other rule for letting sheep was to pay "a pound of wool a head, every year, and keep the old stock good." As an average lot of sheep were worth only a dollar a head, and wool forty cents per pound, the interest on the price of a sheep was 40 per cent. In this rule, as in the other, the danger to the owner lay in having the "old stock" returned rather the worse for age, but after counting all the disadvantages and losses, the sheep business in the olden times was profitable to all parties concerned, and is so now. There are two crops a year—a crop of lambs, and a crop of wool. Of course, in sheep raising, as in every other business, there must be thoughtfulness, watchfulness, and painstaking. It has always been so, and in ancient times it seems that from fear of thieves, dogs, or wild beasts, sheep had to be watched by night. When my father had collected in about a hundred sheep, I was appointed shepherd, and felt highly honored. Shepherds were honored in New Testament times. It was to shepherds near Bethlehem, to whom the first announcement was made of the birth of our Saviour. I always liked sheep, and never cared for dogs. Until they have been worried by dogs or wild beasts, sheep are the most innocent and confiding animals in the world. Like little children they think all the inhabitants of the earth, both man and beast, are good and friendly beings. My sheep soon became so tame that I could catch any one without a shepherd's crook. Some of them (if allowed to) would stand on their hind legs with their fore feet against my breast, and stretch up their nose towards my face, as if to kiss me. It is said that "a change of pasture makes fat calves." Certain it is, that a change of pasture, or change of food, will make fat sheep. Not only *fatten* them, but make them grow larger in every way. The sheep which had been let, even those long past the adult age, actually grew taller, larger, and broader, as well as heavier. I had heard that sheep taken from Pennsylvania to New Jersey, though four or five years old, grew, but did not believe it. I believe it now.

Sheep may be divided into two classes—the fine wool breeds, and the mutton breeds. The best kind to keep, depends on the location, and whether wool, or mutton is in best demand. Near the towns where mutton is wanted there is no doubt the mutton breeds will prove the more profitable. To make money with mutton sheep, measures must be taken to have the lambs dropped early—say in February—then by August, if well taken care of, they bring four or five dollars when the market is not overstocked, which is seldom the case. People have discovered there is no other kind of flesh so tender, delicious, and easily digestible as lamb, and are willing to pay more than for any other kind of meat.

Sheep are not so particular about their food as either the bovines or horses. They will eat any kind of straw even buckwheat straw, with apparent relish in the winter. Ewes, however, that are expected to lamb in February or March, should have clover hay for a part of their diet. Both ewes and wethers to do their best should have a ration of roots once a day in winter. Turnips, parsnips, beets, or potatoes seem equally acceptable, but, of course, rutabaga turnips, in the right kind of soil, will out yield all other kind of roots, and are the kind mostly relied upon for feeding sheep in Great Britain, where the animals are turned in the field and allowed to harvest them as fast as they please. The ground does not freeze so hard there as it does here in Pennsylvania. Cracked oats and corn meal are good fattening food for sheep which are soon to be disposed of, but for store sheep, if fed too freely, will have a tendency to loosen the wool and make them lose part of their fleece.

We sheltered our sheep from the storms in winter, and they were confined in the stables so they could not get out until let out when the storm was over. More than half the ailments of sheep are caused by getting wet and catching cold. The ewes expected to lamb, we kept by themselves in a warmer stable than the remainder of the flock, and when one had a lamb she was put by herself, where she and her lamb would

not be disturbed by the others, and could be fed better.

There has always been a dispute whether it paid to wash sheep. The dealer who pays just as much for unwashed wool as for that which is washed is a fool, and will soon have to quit business. We always washed our sheep, and helped them up the bank on clean ground so they would not fall down and dirty their wool. It is cold work, but we always did it without a jug of whiskey on the bank. Shearing sheep is backaching work, but inventive genius has constructed a machine, which, like other labor saving machines, is of great benefit to the sheep shearer.

Sheep must be kept away from laurel. Ours once got out of the field into a laurel patch, and when we found them nine were so badly poisoned they had to be drawn home on a sled. We gave them sweet milk, molasses and clay mixed together, and about a pint of the mixture was poured into each sick sheep. They all recovered.

No State can be successful in raising sheep unless there is a law to protect them against dogs.

J. W. INGHAM.

JERSEYS AS BUTTER PRODUCERS.

Editor Southern Planter:

In the large number of cows that comprise the Filston Farm herd there are many of good butter capacity, and while for milk reasons we have not made many tests, nevertheless, we have lately been testing some of our cows, and will from time to time publish their records. There are in our herd probably twenty-five cows with butter records, and many more will make tests. These tests are not forced tests in any sense of the word, and simply show what a cow can do when it comes to making butter on limited feed and ordinary stable conditions. Butter fat tests are made along with the churn, and so far our best record is 7 per cent. butter fat.

On February 17th, we tested Biko 91875. She is a daughter of Betsy's Stoke-Pogis 2490, out of Abysinnia. Biko milked an average of 41 lbs. a day, and made 16 lbs. 14½ oz. of butter for the week. Her butter was very yellow, and was not colored when sold.

Beauty of Glencoe II 83056, was tested February 28th. She is out of Beauty of Glencoe 41249, by Haddie's Stoke-Pogis 19458. Beauty is a large, handsome cow, and milked 256 lbs. 11 oz. for the week, from which was made 14 lbs. 6½ oz. of butter. She is capable of doing much better, and we expect to see her record improve.

The first heifer sired by Exile of Filston 38537 to make a test, was Exile's Merrideer 112179. Her dam, Sweet Temperance, is a daughter of Matilda's Stoke-Pogis. Merrideer milked 242 lbs. 11 oz. and made 14 lbs. 7½ oz. of butter.

Highland Lady Pogis 102601, was tested March 12th, and made 14 lbs. 12¾ oz. of butter. She milked 213 lbs., but it was extremely rich, and carrried her through to a test. Highland Lady Pogis is by Highland Lad 33284. The dam, Lady Werter 734534, is Stoke Pogis-Eurotas breeding.

The feed for these tests was 15 lbs. of grain a day, mixed in proportions of 3 lbs. of corn meal, 2 lbs. of cotton seed meal, and 4 lbs. of bran. The roughage was 30 lbs. of ensilage, with an occasional feed of hay. This feed did not cost more than 19 cents a day, and the butter was sold to wholesale trade in Baltimore for 30 cents.

ASA B. GARDINER, JR.

Filston Farm, Md.

SALE OF SHORTHORNS IN VIRGINIA.

Major W. W. Bentley, the veteran Shorthorn breeder of Weldon, Pulaski county, Va., writes us that it is his intention to hold a public sale in the early fall of part of his herd, of which notice will be given by advertisement. The stock he expects to offer will be about 45 head of young animals and cows with calves at foot. This sale will afford to stockmen the opportunity of buying at home some of the finest bred Shorthorns in the country. The Weldon Herd has for very many years been noted for the purity of its breeding and the individual excellence of its animale, and at no time in the past have these characteristics been more noted than at present.

SHADE FOR STOCK.

Do not neglect to provide some place of shelter from the fierce rays of the sun for all kinds of stock; money and time spent in providing this will be found to be well spent. It is not necessary that any permanent or costly shelter be provided, but sufficient overhead cover to keep out the direct rays of the sun. The sides are better left open.

REMEDY FOR HORN FLY ON CATTLE.

Pulverized resin, 2 parts, by measure; soap shavings, 1 part; water, ½ part; fish oil, 1 part; oil of tar, 1 part; kerosene, 1 part; water, 3 parts. Place the resin, soap-shavings, ½ part of water and fish oil together in a receptacle, and boil till the resin is dissolved. Then add the 3 parts of water, following with the oil of tar mixed with the kerosene. Stir the mixture well, and allow it to boil for fifteen minutes. When cool, the mixture is ready for use, and should be stirred frequently while being applied.

The mixture costs about 30 cents a gallon. From one eighth to one-half pint is sufficient for one application. To apply the mixture, a brush is essential. At first, it is well to make an application for two or three days in succession.

OFFICIAL TESTS OF HOLSTEIN-FRIESIAN COWS.

During the month of April of the present year thirty-four reports of such tests were received by me. Thirteen of these were of cows four years old or over. Of these cows the average product of milk was 369.9 pounds, the average per cent. of fat 3.75, and the average product of fat 13.896 pounds, equivalent to 17 lbs. 5.9 oz. butter at 80 per cent. fat to a pound, or 16 lbs. 3.4 oz. at 85.7 per cent. fat to a pound. There were also thirteen between three and four years old, of which the average milk product was 359.2 pounds, with average per cent. of fat 3.32 and an average product of fat of 11.911 pounds, equivalent to 14 lbs. 14.2 oz. butter at 80 per cent. fat to the pound, or 13 lbs. 14.3 oz. at 85.7 per cent. to the pound. The remaining cows, eight in number, ranged from 1 year, 8 months and 20 days, to three years old, of which the average milk product was 272.8 pounds, the average per cent. fat 3.47, and the average product of fat 9.462 pounds, equivalent to 11 lbs. 13.2 oz. butter at 80 per cent. fat to the pound, or 11 lbs. 0.6 oz. at 85.7 per cent. fat to the pound. Four net profit tests were reported: Two cows of full age, of which one produced a net profit of $3.717, and the other a net profit of $2.912; one three year-old cow produced a net profit of $3.216, and one two-year-old a net profit of $2.916. All tests are made for seven consecutive days.

S. Hoxie,
Superintendent of Advanced Registry.

"HORSE SENSE."

Editor Southern Planter:

Did you, farmer, travelling man, or horse-owner of any kind, ever think about your horse long enough to know that he is ordinarily a very intelligent creature? Do you know that he will quickly learn to do just what you tell him to do? Farmer, don't jerk and kick your horse; don't yell at him; don't torture him with a collar that is either very much too big or too small; don't take a young horse and put him to hard work when the busy season comes; use him lightly for several months before, some every day, if possible, then he will be in condition for hard work, having become hardened. Do you know that you show less sense, less judgment than your horse when you take a young thing whose flesh is soft and put it to plowing stiff land because one of the old horses has a colt, or for some other reason, no matter how good, without the months of tuition of handling of the muscles? You forget that aside from the exquisite suffering of a living creature (which unfortunately but few of *you* consider), you will be forced to lose the use of the horse much of the time: he cannot work with his shoulders like pieces of raw beef; either he will learn not to pull by keeping behind the horse he is hitched with or he will balk and perhaps be ruined for life. Give more than a passing thought to the suffering horse, who carries you so nobly, often when enduring agonies which would place you in bed and summon doctors and nurses. Give the horse credit for his intellect. Trust him more. Be kind and gentle; don't scold him for misbehavior; use the whip if necessary, but follow it with gentle words and soft pats on his neck if you are riding him; he will soon learn that the whip is only used when he is at fault, so quickly as to surprise you. You can then teach him to trot, walk, or go any gait at his command, just by a signal from you or by using the word trot or walk. You will be surprised at his obedience. He knows that the whip will be used if he doesn't obey. A horse can reason—yes, just give him a chance.

So few people realize that gentleness will control a horse often when force can accomplish nothing. Give your horse kind words and gentle pats with his feed rather than harsh words and cuffs; his feelings are as easily hurt as your own, unless he has become so hardened that the rough voice passes by on the other side. Judge him by yourself. What encouragement would you have to do your work well if your employer dealt you only scant food, harsh words and the whip? See that his bit is not pinching either, because it is too narrow, or because head stall of bridle is too short. You will find that work horses are more comfortable with straight bits. Don't forget to put pads under the collars at first, not after the shoulder has gotten so sore that the pad, by making the collar too small, is a disadvantage. In short, don't leave your team to the *tender?* mercies of the hired man. See to them yourself. Have the young horses' shoulders bathed with salt and water or alum and water, or both; it hardens them; do it when you first use him, don't wait until the shoulders become sore, for salt irritates a sore. In driving your young horse with another, take a whip; if the old horse needs touching up, use the whip, don't yell at him, it only makes the colt pull faster and has no sort of effect on the old horse? Hitch him always with a steady, quiet horse.

Caroline Co., Va. P. M.

BUTTER SHIPPED INTO VIRGINIA AND NORTH AND SOUTH CAROLINA.

In the year ending June 30th, 1899, 1,159,400 lbs. of butter was shipped into Virginia; 110,224 lbs. was shipped into North Carolina, and 258,159 lbs. was shipped into South Carolina. Yet we are told dairying cannot be carried on profitably in the South!

The Poultry Yard.

WHAT GRAINS LACK AS POULTRY FOODS.

Grains alone make poor poultry rations. This was proven by tests made at the New York Station in 1898; and the truth has been confirmed by weighty evidence from numerous and extensive trials completed in 1899. The best grains, in most palatable combinations—"Regular hotel fare for variety," as described by a well known poultry feeder—and made up in rations properly balanced according to the best ideas in poultry nutrition, showed a deficiency in growth-making, egg-producing power.

In the preliminary experiments, reported in Bulletin 149, this lack of some factor—some chemical element or some peculiar quality—was shown in tests with chicks, cockerels and ducks. The rations compared were made up entirely of grains, on one hand; of grains, meat meal and other animal foods on the other. Some skim milk and green stuff were added to both. The contrasted rations had approximately the same chemical composition, so far as protein and carbohydrates are concerned, and the same nutritive ratio. The larger protein supply in the animal food ration was counterbalanced in the grain ration by increased amounts of pea meal, linseed meal, gluten meat and ground oats, which are rich in this flesh-forming element of nutrition.

Notwithstanding the almost complete equality of the rations, so far as nutritive ratio are concerned, the animal food ration gave the best results. Upon it the chicks grew much faster and gained more flesh for the same amounts of food given; the cockerels also did better upon the meat meal than upon grains alone, so long as they made profitable growth at all; and the ducks throve and grew rapidly in the pens fed the meat meal, dried blood or cut bone; while growth was slow and deaths frequent in the pens where grain alone were fed.

Though most carefully conducted and most striking in its results, this series of tests was not conclusive. It is a maxim of careful investigation that "One and only one cause of variation can be allowed in any comparative test of materials if absolute accuracy is secured." That is, for example, if we wish to know whether *clay* loam or *sandy* loam is best for the growth of strawberries, we must make *all* conditions alike for the plants except the soil. The same variety must be grown on equal plats or boxes, side by side to secure uniform light and heat; equal amounts of the same fertilizers must be used; and the plants must receive the same amounts of water. Even then, if one of the two plats or boxes is nearer a bed of vigorous plants of some other variety the difference in yield may be due partly to better pollination, not to soil difference alone. *Every* condition must be alike for both, except that condition of which the influence is considered.

This careful weeding out of factors which may influence results makes securing certainty through experimentation a slow matter; and in no class of work must so many things be considered as in feeding experiments.

In this test, for instance, the materials were so proportioned that all the commonly considered food compounds were equal in amount, their source, only, different; the birds fed were alike in breed and methods of hatching and brooding; equal in number, age and weight; and subject to the same conditions of housing, care, watering and all controllable factors. The experimenter might well seem justified in saying that the good effect of the one ration was due to the fact that part of the protein in this ration came from animal food.

Careful study of the chemical analyses, however, showed that the two sets of rations differed in one other particular. The meat-meal ration contained much more of the *ash* or mineral elements than did the rations made up of grain alone. Mineral matter forms a large part of the animal body, and must be considered in the food, especially of the young animal; therefore this discrepancy could not be set aside. So long as the *two* possible causes of variation were present—different sources of protein and different amounts of ash—it was impossible to say to *which* factor was due the better effect of the animal food ration. In these trials also, some skim milk and curd had been used with the grain ration; so the comparison was not *strictly* between grains alone and grains with animal food. As milk is an animal product there was a little animal matter even in the "all-grain" ration.

To meet these conditions other experiments had been planned and were carried out in 1898 and 1899. In the first series similar contrasted rations were used as in the tests reported in Bulletin 149; but the foods were somewhat differently combined to secure greater palatability for the ration made up wholly of grains. The amount of ash in the two rations was still unlike. One ration for chicks and hens consisted of wheat, cracked corn, barley, oats and a mixture made up of corn meal (14 parts by weight); animal meal, 11; ground oats, 2; wheat bran, 2; pea meal, 2; wheat middlings, 1; O. P. linseed meal, 1; malt sprouts, 1; brewer's grains, 1; and gluten meal, 1. The contrasted ration, grains only, consisted of wheat, barley, oats, and a mixture of pea meal, 7; wheat bran, 7; O. P. linseed meal, 6; gluten meal, 4; corn meal, 3; ground oats, 3; malt sprouts, 2; brewer's grains, 2; and wheat middlings, 2. One pound of salt was used for each 360 pounds of each mixture. For the ducklings, wheat bran, corn meal and ground oats were used with one or the other of the mixtures.

Five lots of chicks were fed upon each ration, and in every case the lot fed upon grains alone required more dry matter in the food for each pound of grain than did the corresponding lot fed on the ration composed in part of animal meal. The same result held true with the four lots of laying hens compared; for it took more grain to produce a pound of eggs than it did grain and meat meal. The average with both chicks and hens was nearly one fourth (23 per cent.) more food required on grains alone, for each pound of flesh or eggs, than on the animal meal ration.

The difference was much more striking in the case of the ducklings; for here animal meal seems a *necessity*. The ducklings under the other ration died so rapidly that the test had to be continued in a changed form after four weeks, some animal food being given

to the lot started on grain alone. Up to the time the change was made it took 2½ times as much food for a pound of gain for the grain-fed birds as for the others.

In the second series of experiments, the proportions of the ingredients were slightly altered in each ration; but the contrast was still maintained between all-grain and part grain, part animal meal. To supply the mineral matter which was lacking in the all grain ration, bones were burned to get rid of all organic matter, and the fine ash was added in sufficient amount to make the weight of ash in the two rations practically equal.

Upon the grain ration, thus supplemented by the ash, the three lots of chicks grew just as well, remained as healthy, and made as good gains as did the three lots fed part animal food. The gain upon the ash-supplemented grains was made upon a little less food for each pound than that upon the other ration. Laying hens, also, upon this ration, made equal in mineral matter, produced as great a weight of eggs as upon the animal meal ration for most of the time, but began to show a slight advantage for the animal food toward the end of the thirty weeks.

With ducklings, on the contrary, the addition of ash to the grains made this ration much better for them than the grains alone had been, and reduced the difference in rate of gain between the rations; but the animal meal ration was still best. The lot receiving the grains required nearly one-third more food for each pound of gain than the lot on the animal food.

In these tests, 1,000 chicks and 170 ducklings have been grown to marketable size, and 90 hens and 40 cockerels have been fed for lengthy periods; so that the evidence has the weight of time and numbers. It all points in one direction: Toward superiority of rations containing animal food over those made up of grain alone. In no case has the reverse of this proven true, and in nearly all the trials the difference has been *most noticeable.* When the lack of mineral matter in an all grain ration, as compared with one containing animal meal, is supplied by bone ash, the difference disappears or favors the grain ration—so far as chicks and laying hens are concerned. That is, it is the small amount of ash in the grain ration which makes this ration inferior to one containing animal meal, rather than a difference in quality of the protein.

Practically, this is of little importance, for, except under rare conditions like those surrounding these experiments, it would be easier, cheaper and better to use animal meal, meat scraps or cut bone to supplement a ration for fowls in confinement, than to burn the bones or to buy bone ash. Something to supplement the ash-poor grains they must have, and it is simpler to give it in a natural form, combined with valuable protein and fats, than to burn out the organic matter and give the ash only.

In farm poultry feeding, where the birds have the range of orchard and pasture, of course they get animal food in the insects and worms and snails which they scatch for so vigorously; so grains may make up practically all the ration fed. The birds themselves will attend to the supply of animal food.

With ducks, however, even the addition of the bone ash did not make the grains a perfect feed. Ducks are naturally great lovers of small fish and frogs and snails and such forms of animal life found in their water excursions, and unless they have something to take the place of this animal matter, they cannot do their best. F. H. HALL.

New York Experiment Station. Geneva, N. Y.

REMEDY FOR CHOLERA.

Worth Fifty Years' Subscription to the "Southern Planter."

Editor Southern Planter:

During my thirty years' experience in breeding fancy poultry, my flocks were frequently visited by cholera, and I have spent at least a hundred dollars trying almost everything recommended or advertised, but until two years ago have never found anything that would cure or prevent it except occasionally.

I discovered it through a lady friend, who, having her flock attacked with this disease, sent for me as an expert to advise her the best thing to do.

She had lost a number, and at that time had two White Leghorn cockerels in a coop, so far gone that they could not raise their heads off the floor, nor open their eyes, and with very dark combs.

I very promptly told her to have them taken a distance from the house, killed and burned or buried, and to treat likewise any that showed the least sign of sickness, and to give the others a little Duval & Norton's Horse Tonic in their water every day—this being the most effective of any remedy I have ever tried.

She said, several months ago, the doctor gave her some medicine for colic, and it cured her, and ought to cure a chicken, and brought a small vial out and said she was going to try it.

I laughed and left, telling her that the whole flock would die if she did not do as I said.

Just six days after that, in passing, she called me in, and showed me the two cockerels, perfectly well, with bright, red combs, and I could hardly realize it. She had put some of the medicine from the vial in the water for the flock to drink, and had not another case to develop, although a number had previously died. I immediately got the bottle and had it filled. Have tried it a great many times myself, as well as recommended it to others, and have never heard of its failure to cure in a single instance. It is too good to keep a secret, and being so cheap and obtainable at any drug store, there is no reason why *your* subscribers should ever suffer loss on this account hereafter. Ten cent's worth of it is enough. Keep it ready for the first appearance. It is simply *chlor anodyne.* Give those affected ten drops in half a teaspoonful of water every two hours until relieved. Give the flock twenty-five drops to every half pint of drinking water until the disease has disappeared

This prescription is worth the cost of fifty years' subscription to the *Southern Planter* to any poultry breeder. GEO. T. KING.

Although many foods have been recommended for young chicks, we have always had excellent success with stale bread and oatmeal, fed in the dry condition, until the chicks are ten days old, when they may be given cracked corn and wheat screenings also. Too much soft food is not wholesome for them.

The Horse.

THE HACKNEY AS A CROSS ON AMERICAN STOCK.

Editor Southern Planter:

In the last number of *The Southern Planter* there is a paragraph which seems to advise the breeding of the Hackney upon American stock, and makes some claims for the Hackney that will be hard to sustain. The first is a statement that the Hackney "has been bred pure for hundreds of years." To have a pure-bred animal of any kind we must have from six to eight uncontaminated crosses of blood in the breed sought for, and as there was no Hackney stud-book until quite recent years there would be no pure-bred foundation stock "hundreds of years" ago for the latter day Hackneys to be descended from. To the second claim, that the American trotting horse "traces directly" to the Hackney, I defy any man to produce a horse with a reputable record at any gait that is descended from a Hackney without a cross of more prepotent trotting blood. It is quite true that Bellfounder sired the dam of Hambletonian 10, but it is also true that she was the only trotter he ever got during the twenty one seasons he made in this country, and that even this credit does not belong to the Hackneys as Bellfounder was foaled long before the Hackneys were called a breed, and that neither James Boott, who imported him, Samuel Joaques, Jr., who managed him, or T. T. Kissam, who had charge of him, ever called him a Hackney, for the very good reason that the name was not then invented. The same writer credits imported Messenger with being a thoroughbred horse. How can he be thoroughbred when his dam's identity has never been established and his great grandsire was out of a mare of unknown breeding. The American trotting horse, the harness horse *par excellence*, that has beaten the Hackney in the show ring and the sale ring, on the track and on the road, is descended from a number of families of horses, all the prominent members of which, with the exception of Seely's American Star, trace either to Messenger or to a pacing ancestry, and I have no doubt that were it possible to trace the pedigree of the so called Canadian stallion, the sire of Seeley's American Star, he would cease to be the exception that proves the rule, leaving that honor to the chestnut son of Old Bellfounder and Velocity with his one performance in 2:41 under saddle. The Hackney horse is not a trotter, he is not a runner, he cannot be called a hunter, and he certainly never has been known a pacer. He must then go on the market in competition with the trotters that do not show speed enough to encourage development—the runners that cannot earn their oats at outlawed tracks, the hunters that cannot jump, and the pacers that insist upon progressing with a diagonal instead of a lateral step. In other words, he competes only with the failures of the breeders who aim at something more useful and higher priced. He occupies the same place in horsedom as the dairy cow that gives no milk and the butcher's beast that will not get fat, do in the stockyard. If we must breed our mares let us breed for a special purpose; the successes will give us high-priced horses and the failures will surely supply us with all the hacks we need. Let each breeder study the local demand and breed to the best individual of the type that brings the most money in his neighborhood, whether it be the trotter, the pacer, the runner, the jumper, or last, but by no means least, the ass, but do not patronize the only breed the auto mobile can render worthless.

Mathews Co., Va. PERCIVAL HICKS.

[We publish the foregoing, not from any sympathy with the views of the writer but to show our willingness to admit all sides of the great question of the type of horses to be bred to a hearing. Coming as we do from one of the two counties pre eminently celebrated for breeding the purest Hackneys in England, and having always kept a Hackney when on the farm for general riding and driving purposes, and knowing thus from personal experience how reliable and valuable for all purposes, except racing, the Hackney is, a reliability which has gained him almost universal recognition as a useful type of horse all over the world, and one always in demand, we are not willing to silently allow his character to be assailed. His prepotency and purity of breeding is shown conclusively by the fact that, bred on Virginia mares of racing or trotting type, he stamps the Hackney form and style unmistakably on the progeny and produces a horse saleable always at a good price.—ED.]

NOTES.

An old subscriber and regular patron of the *Southern Planter*, for the reason that he has obtained the most satisfactory results from its advertising columns, is Mr. T. O. Sandy, of the Grove Stock Farm, which is but a short distance from Burkeville, in Nottoway county, Va Burkeville is less than sixty miles from Richmond, and at the junction of the Southern and Norfolk and Western railways, being easy of access by either route. There are 900 acres of land in the Grove Farm, which is principally devoted to breeding and rearing live stock, and in that direction Mr. Sandy is one of the most progressive farmer, in Virginia.

The present season has been a prosperous one at the Grove, and sales have been numerous, while satisfac-

tory prices have been realized. On account of hardy constitution, soundness and docility of temper fitting them for general purpose, road and driving horses, the Hackney is given the preference at the Grove, and the imported stallion, The Duke, a roan son of Silver Star and Fanny, by Rob Roy, is kept for service. He is a horse of powerful muscular development, yet symmetrical in form, and decidedly attractive in appearance. He has been kept busy in the stud since the commencement of the season, and some of the best mares in that section have been bred to him. The late Capt. Orris A. Browne, of Cape Charles, Va., who formerly owned The Duke, and thought very highly of him, frequently said that the roan stallion was the only horse he had found able to take up his weight (250 pounds), and carry it day after day, doing it cheerfully and standing the work well.

Holstein cattle are accorded the preference over all other breeds by Mr. Sandy, and his herd, headed by the fine bull, Sir Netherland of Maples, is a choice one, while the cows, twenty in number, represent the richest strains of blood. Berkshire hogs, Brown Leg horn and Plymouth Rock chickens, and English Beagle dogs are also bred at the Grove, where visitors are accorded the best of treatment, and may find much of interest in a stroll over the broad acres of the farm.

One of the finest appointed breeding establishments in America is Mayfield Stud Farm, Leesburg, Va., owned by J. Story Curtis, the South African millionaire. The collection of thoroughbred horses there is a grand one, and represents a big outlay of money. The stallions in use, five in number, are all imported horses. Imp. Saville, a son of Hampton, out of Lillian, whose fee is $250, heads the stud, while after him comes Contract, by Isonomy, out of Wedding Ring; Benvenuto, by Galopin, out of Queen of Diamonds; Mincemeat, by St. Augustine, out of Cutlet; and Royal Stag, the son of Highland Chief from Barcelona, by Barcaldine. The broodmare band includes American bred matrons of the choicest individuality and breeding; also a fine collection of English mares, while four, Reprieve, Heatherell, Whitsuntide, and Rosanna, were bred in South Africa and imported direct. Mr. Charles Mott, who directs affairs at the Farm, is a student of bloodlines and pedigrees, and the fancier of thoroughbred horses who may visit Mayfield will be charmed by the sights to be seen at this splendidly equipped breeding establishment.

Recent foals at Alamance Farm, Graham, N. C., the property of that prince of buyers, breeders and owners of the Old North State, include a brown colt by Gregorian, out of Coralyn, by Dictator, and an unusually handsome filly by the same sire out of Blondette, dam of Governor Holt, 2:15, by Leland, and both mares were bred back. One of the best prospects in the Alamance Farm stable of trotters and pacers is Eliza Ingram, a chestnut filly, 4, by John R. Gentry, out of Blondette, while Katherine Wharton, a brown filly, 4, by Baronet, out of Coralyn, is just about as promising. John R. Gentry, who, in point of record, ranks second to Star Pointer, 1:59¼, and is regarded as one of the greatest of pacers, was formerly owned by Mr. Holt, as was Baronet. Gentry cost the master of Alamance Farm an even $10,000, while $3,000 was paid for Baronet when three years old.

The big bay gelding Rustler, by Hustler Russell, 2:12¼, owned by E. D. Christian, Jr., of this city, proved himself quite a good horse at the Gentlemen's Driving Park, Baltimore, on May 22d, when he won the 2:35 class, trotting, and earned a record of 2:24¼ in the second heat. Used as a road horse for two or three years past, Rustler was handled only a short while this season, but came to his speed rapidly and trotted a trial close to 2:20 before leaving home. He was bred by W. E. McAfee, Shelby City, Ky., who owned his sire and dam, the latter being Lady Pilot, by Pilot Mambrino. Rustler was driven in his race at Baltimore by C. A. Pusey, of this city, who is familiar with the game, as nearly twenty years ago he took Lona Guffin, 2:23¼ down the Grand Circuit line, while since then he has trained and driven in winning races, such good ones as Mosul, 2:09¼; Firewood, 2:17¼; Little Betz, 2:23¼, and others.

Mr. A. D. Payne, of the Annita Stud, Charlottesville, Va, reports that his 1900 crop of thoroughbred yearlings, eleven in number, is about the best ever turned out at the Farm. They are mostly by the Annita sires Jim Gray, the son of Ten Broeck and Alice Gray, by Enquirer, and Imp. Water Level, an English bred son of Isonomy and Water Lily, by Lord Lyon, from whose loins came Water Crest, Waterhouse, and other good winners. Jim Gray was a superior racehorse himself, while his get includes Grayless, winner of the Bluegrass stakes at Louisville this spring, Grayling and others. The Annita yearlings will be sold by the American Horse Exchange, New York, on June 11th, and among them are full brothers to Grayling, Water Crest, Hardy C., and other good race horses, while their dams are choicely bred daughters of Eolus and other great sires.

Capt. John L. Roper, of the Foxhall Farm, Norfolk, Va., is very proud over the arrival of a couple of very handsome trotting bred fillies that were recently dropped at the farm—one of them being by Great Stakes, 2:20, the premier sire at Foxhall, out of Jessie Stamboul, dam of Clesomtay, 2:18¼, and the other by the famous Allerton, 2:09¼, out of Mime, by Eagle Bird. Jessie Stamboul is a very richly bred mare, being by Stamboul from a sister to Iona, 2:17½, by Alcyone, out of the great brood mare Jessie Pepper.

Mr. Louis Becker, of Baltimore, an old subscriber to the *Planter*, and a liberal patron of the trotting horse, is much elated over the possession of a pair of very handsome twin fillies dropped at his country home near Arlington, a suburb of Baltimore, on May 20th. They are bays in color, marked alike, and of fine conformation. The youngsters were sired by Bow Bells, 2:19¼, dam Imbroglio, by Nutwood, second dam Silica, by Princeps.

M. L. Bergen, a well-known trainer and driver of trotters, died here recently. Familiarly known as "Red Mike," Bergen was a skilful conditioner, and one of the best care takers in the profession. To him was due the credit of developing and bringing out the giant gelding, Mosul, 2:09¼, by Sultan, and other good horses. Bergen had made Richmond his home for a number of years, but hailed from Paterson, N. J., where his remains were sent to relatives.

BROAD ROCK.

Miscellaneous.

A TOBACCO EXPERIMENT STATION AND MODEL FARM.

An Open Letter to the State Board of Agriculture.

To the Honorable State Board of Agriculture of Virginia:

GENTLEMEN,—The act of the General Assembly approved 29th December, 1899, imposing a *tag tax* upon fertilizers will find the Department an Income estimated by the Commissioner at $30,000.

By the terms of this act, the Board is restricted in the use of this fund to "Experiments in the nutrition and growth of plants, with a view to ascertain what fertilizers are best suited to the various crops of the State, and whether other crops may not be advantageously grown on its soil, reporting, publishing, and disseminating said results."

It is needless now to inquire why the Supplemental or *Mann Bill* did not become a law, or what the Board may do when authority is granted by the Legislature. The fact stands out, that after paying $500 to the Commissioner, the expenses of the Board, and the cost of operating the law, the Board though given absolute power over the fund, is restricted to the specific line of investigation indicated in the clause quoted. The surplus available for this purpose should not be less than $15,000.

The discretionary power with which the Board is invested, imposes in fact a grave responsibility. If not wisely and judiciously used in the only line indicated, the result will prove disastrous to the Department of Agriculture. The farmers will join the fertilizer men in demanding a repeal of the law, if not the reorganization of a department which has proved unequal to the task assigned it. As the larger part of this fund arises from fertilizers used upon *the tobacco crop*, what could be more appropriate than to set aside the bulk of the surplus available for experimentation, to the establishment of a *Tobacco Experiment Station and Model Farm in the Tobacco Belt.*

From the foundation of the Colony the cultivation of tobacco has given employment to a large part of the population, while its transportation, sale and manufacture, have furnished the basis for the largest and most lucrative commercial and individual enterprises. It is to-day the staple crop of half the agricultural population of the State, and the trade and manufacture sustained by it have built up and enriched the cities of Richmond, Petersburg, Lynchburg, Danville, and Farmville, with numerous villages. No other commodity enters so largely into the life and business interest of all the people, and no other interest presents so strong a claim to the fostering care and development of the State Board of Agriculture.

The organization of the *American* and *Continental* Tobacco Companies, and the concentration of all the foreign orders in the hands of *one man*, enables these corporations to fix the price paid to the planter, as well as that paid by the consumer, without regard to the laws of supply and demand, or the value of the product—which has exercised a most demoralizing effect upon this important interest. While stocks of tobacco in this country are lower than they have been for ten years, and although the crops of the past five years have been smaller than during the previous five years, yet the prices paid for tobacco are tending downward, and are held down by combinations in the trade below the cost of production, for three fourths of the tobacco made in this State. The poverty of the planters renders them powerless to do anything in the premises without the assistance of the State Board of Agriculture.

Fortunately, it turns out that the embarrassment which hasty and imperfect legislation imposed upon the Board, may be relieved by the emergency of this great interest which offers a field of research and investigation just along the line indicated in the law enacted by the Legislature in December last.

The surplus arising from the "*tag tax*" over and above the ordinary expenses of the Board will furnish a *nucleus* around which this important interest can organize and crystalize.

In fact, we have reached a period in the history of this country, as well as in the evolution of its industries, where success cannot be attained without *organization, specialization* and *centralization.* In other words, every business must be conducted on scientific principles, and the system must be intensive as contradistinguished from the extensive and loose systems which have characterized the past. This cannot be done except by scientific men, who are supplied with the necessary apparatus and equipment, such as are found in a modern *Experiment Station.*

PLAN OF ORGANIZATION.

In order that a vital union may be established and maintained between the planting interest and this institution, it is proposed that the planters in their respective neighborhoods shall be organized into *Co operative Tobacco Unions*, the local unions into county unions, and all the counties into a District Union or State Association, who shall elect the Board of Control of this Station. This Board of Control, together with the members of the State Board of Agriculture from the dark and bright districts, with the Commissioner of Agriculture, who shall be *ex-officio* members, shall elect the Director, Treasurer and other employees of said Station, and cut out its work and indicate such investigations as may be necessary to foster and develop this paramount interest. Among these may be mentioned:

1. Geological and mineralogical investigations which will lead to a classification of the tobacco soils, with their adaptations and fitness for the production of the various types, grades and classes of tobacco demanded by the trade.

2. Experiments with the different *varieties* of tobacco in use among the planters, with a view to ascertain what kinds are best adapted to the production of the most approved types which are demanded by the foreign and domestic consumers.

3. Investigations with the different fertilizer elements, through field experiments upon the different soils to ascertain what combinations produce the most approved types of tobacco.

4. These experiments should be conducted throughout the tobacco section upon the basis laid down in "*Circular No. 5.*" issued by the U. S. Department 1878—by which means the best varieties of tobacco and the fertilizers adapted to their production will be shown in each case.

5. Investigations into the origin, life, history and means of destroying *insect enemies;* also the diseases to which the plant is liable—the *cultivation, curing,* fermentation and classification, as well as the statistics of tobacco, foreign and domestic, as a basis of valuation.

Tobacco Trusts.

Various efforts have been made in this and other States to organize the planting interest in such a manner as will enable it to combat successfully these trade monopolies, which have been able not only to put the price of the raw product below the cost of production, but have succeeded in holding the price down during the present and past year, when every other commodity, under the influence of an expanding currency, with almost unparalleled prosperity, has advanced in price from 25 per cent. to 150 per cent. None of these efforts have so far been able to meet the exigencies of the situation; their failure is due to the inability of the planter to control his crop, and this inability arises from poverty, and this poverty merely from the exactions, depredations and spoliation of trade combinations. It is believed, however, that such an organization as is here indicated, equipped with a charter which will make it a *corporate body,* including the entire planting interest embraced in the tobacco belt of Virginia, backed by an adequate appropriation from this *tax fund* to pay the running expenses of the organization, will enable us in a short time to restore the normal conditions of trade and secure for the product of our labor its fair market value, under the laws of supply and demand. This, with the application of improved methods with scientific principles and appliances furnished by the Station, will speedily rehabilitate this fundamental and paramount interest of Middle and Peidmont Virginia. While in extreme cases it may become necessary for the planters, through the agency of the machinery here supplied, to pool their crops, and withdraw them from the market, or to curtail materially the annual production, by reducing acreage, nevertheless, it should not be the policy of this organization to speculate or to bull and bear the market after the fashion of the day, but simply to place themselves in a defensive position to prevent the depredations of monopolistic corporations. It is further contemplated, that this State Association of Co-operative Tobacco Unions, through the agency of its scientific corps at the station, will either manufacture its own fertilizers or purchase them at the wholesale price without the intervention of any other agency or tax than that imposed for the support of the organization. It may possibly eventuate that, unless the State Board of Agriculture shall make a fair division of this fund, that we may ask the Legislature, at its next meeting, to so alter and amend the law as to give us the benefit of what we pay, and turn over to the *Tobacco Experiment Station* the inspection and control of this branch of the fertilizer trade.

Without undertaking to discuss the many benefits and advantages which the great tobacco interest of this State may derive from such an organization, *backed by an experiment station and model farm,* located in the tobacco belt of the State and sustained by the tax upon fertilizers used by them, it is nevertheless necessary to indicate more clearly the line of scientific work which such a station would be expected to prosecute.

1. In the first place, we must keep constantly in mind the fact that the commercial and manufacturing interests are thoroughly organized and capitalized with hundreds of millions of dollars for the purpose of controlling legislation on this subject, as well as fixing the prices paid for the various kinds of tobacco used by them.

2. That as a commodity, it enters largely into the fiscal systems of the United States, Great Britain, France, Germany, Austria, Spain, &c., producing annually hundreds of millions of dollars of revenue to sustain their depleted coffers.

3. That the types, grades and classes of this tobacco are well defined and stipulated by contract when bought through the Regie governments.

4. That we export annually about 300,000,000 lbs., which the producer receives only about 5 cents per lb. for, but which is valued as an export at 8 cents per lb. That we import annually about 20,000,000 lbs., for which we pay an average price of 75 cents per lb. plus a tariff of 35 cents per lb. on fillers and $2 per lb. on wrappers.

5. Now, as it takes about 10 lbs. of exported tobacco to pay for one lb. of imported, the first question this station will have to answer will be, How can we stop making the 8 cent tobacco and substitute the 75 cent grade for it? In other words, get out of a bankrupt business into one which pays a handsome profit.

6. Massachusetts, Connecticut, New York, Wisconsin, Pennsylvania, Maryland, North Carolina, Florida, Louisiana and Colorado have been struggling with these problems and have certainly thrown a vast deal of light upon them, and some of them claim to have found the solution. At any rate, under the guiding hand of scientific investigation conducted by experiment stations, they produce from two to three times as much tobacco to the acre, and get from two to ten times as much per lb. for their tobacco as we do for ours. It has been said that the history of tobacco is coeval with the history of Virginia, and that it is wrought into the very web and woof of the State. But it is sad to relate that the Old Dominion has ceased to keep step to the music of the times. With 700 lbs. per acre, at not over 5 cents per lb., including dark and bright, we get $35 per acre for what costs us at a minimum $45 to produce, including labor, guano, taxes and interest, &c. Why is it that every State in the Union has gone ahead of Virginia? Simply because this industry with them has been thoroughly organized, highly specialized, and the work centralized around experiment stations, which have already solved many of the knotty problems which vex the minds and embarrass the operations of our planters. Success depends upon the application of well-established, scientific principles, the selection of proper varieties for the production of certain types which are in highest esteem, the proper selection of materials of fertilization, and the application of intelligent, economic details to the culture, curing, handling, ordering, sorting and selling the crop when made.

7. It is of the first importance that the planter should know the adaptations of his land, which expe-

rience shows dominates the type of tobacco grown thereon. He must also know the demands of the market, the stocks of tobacco in home and foreign markets, and the crop prospects the world over.

8. The effect of climatic conditions—the mean annual and seasonal temperature and rainfall—the composition and water content of the soil, its special needs in fertilization and cultivation, all of which information can only be furnished intelligently and successfully by locating the station in the tobacco belt and bringing it into direct contact by forming a vital union with the planting interest.

9. The statistics of production can be furnished through the Commissioner of Revenue, who must list annually the acreage and production of each planter and the price obtained, while the Commissioner of Internal Revenue U. S. can furnish all statistics of the trade and manufacture, with amount exported to and imported from each country, with value of same at home and abroad.

10. It will be the duty of the Scientific Corps at the station, equipped with all the scientific means and appliances, to collect and distribute among the planters all this information, and to conduct such other investigations as the Board of Control may find necessary to enable them to combat successfully the combinations in the trade against them.

11. We propose that the planters in each of the thirty-five counties in which tobacco culture forms a leading interest, shall meet at their respective court-houses, say July court, and send some of their best men, who will agree to go, to a convention in Lynchburg, 1st day of August next, for the purpose of forming a *State Tobacco Association*, obtaining a charter for our organization and appointing a committee to go before the State Board of Agriculture to obtain the necessary funds for carrying out the plans and purposes laid down herein, and for such other purposes as may seem good to them in furtherance of the objects contemplated.

This movement is one of such vital importance to the social, moral, commercial, economic and industrial interest of the *tobacco section*, that we would respectfully ask the newspapers published in the counties, cities and towns embraced therein to either publish this article or take such notice of it as will inform all those who are interested of the time, place and the objects which it is proposed to accomplish, and oblige

Your very obedient servant,

RICHARD V. GAINES,

May 24, 1900. *Mossingford, Va.*

BREEDING PURE-BRED STOCK AT THE STATE FARM.

Editor Southern Planter:

The article in the May number on stocking the "Virginia State Farm" with registered cattle and sheep, so as to enable farmers to raise the standard of breeds, suits me perfectly, as it must other farm owners. If the managing board and Legislature will act, I will present a thoroughbred, registered Shorthorn bull to the farm as a starter, and I have no doubt there are "others." J. T. GIBSON.

Bedford Co., Va.

BEES IN TIDEWATER VIRGINIA.

Editor Southern Planter:

Everything so far indicates a good yield of honey this season. As the yield for the past two years has been very poor and the supply of honey is exhausted, I am looking for a rise in the price. In Tidewater Virginia not one in ten of the farmers keep bees who did so twenty years ago.

At this time of the year, while the bees are rearing young, they consume large quantities of water. To obtain this they have to fly at times long distances, and the weather being cool very many get chilled and die at a time when every bee is needed in the hive to help to furnish heat. Therefore it is well to have water handy for them. I take the bottom of an old stove or a trough and keep it well supplied with water, putting in a sprinkling of straw, so that I lose very few in that way. In this way, if you commence early in the spring, you are not apt to be troubled with the bees at the place where you water stock. I have forty stands spring count, and the past autumn and winter have fed them well nigh two barrels of sugar, costing $39. The income for the past year was $37.75.

Bees have three enemies in the bee-martin, spiders and roaches. Use the gun for the first, and for the last equal parts of flour and land plaster mixed and placed where they collect.

Irish potatoes are up, and the potato bug is on hand as usual for his share. Fall-sown oats are looking well. No wheat grown in this section. There is a pretty good showing for fruit in Tidewater Virginia.

Nansemond Co., Va. J. H. ALLEN.

INSECTS AND WORMS INJURIOUS TO FARM AND GARDEN CROPS.

The Entomologist of the Department of Agriculture at Washington writes us that a more complete work on the subject of the insects and worms injurious to farm and garden crops is in progress, and he desires the co-operation of all interested in the subject. He is particularly desirous of obtaining further information on the "Fall Army Worm," the pest that destroyed so much grass, millet and other vegetation in certain sections of this State last year. He desires particularly to obtain specimens of any cutworms or other worms at all resembling the Fall Army worm, or of any other caterpillars or worms found attacking plants. We invite the attention of our readers to this request. Send specimens of worms, &c., to the Entomologist, Department of Agriculture, Washington, D. C.

Mention the *Planter* to your friends.

NOTES.

That "just anybody can be a farmer" is a mistaken idea. It takes ability to manage a farm, if success is to be attained. The farm will make satisfactory returns only when well-directed energy and industry are expended upon it.

If the labor on the farm commences not with the sun, there is something lost; for the sun governs the length of the day's work. "Early to bed and early to rise" should be the farmer's motto.

Some farmers complain that they have no time to read; but a few minutes can be utilized now and then, which are usually thrown away—except so far as they are given to rest. Almost every farmer wastes time enough to keep himself fairly well posted on the affairs of the day, as well as to gather useful information from the books which he may read.

Every farmer should study to know his own interest. Many who work hard and fail, would make a success did they but study this matter in all its many-sided phases, and know just what to do with the returns of their labor.

FRANK MONROE BEVERLY.

Dickenson Co., Va.

GOING SOUTH.

Editor Southern Planter:

To a man acquainted with conditions of crops and climates North and South, it seems strange that people should try to farm in the North while better lands two months earlier are to be had in the South, and at half the price of farm lands in the North.

The ground is prepared in South Carolina in February, and everything planted by March 15th. In the North the time is at least six weeks later, and generally two months. While peas, lettuce, cabbage, etc., are coming to market from South Carolina, they are just planted in the North. The edge is taken off the market, and chances of profit to the Northern farmer are exceedingly small.

To one familiar with these facts, farm life is exceedingly dull and discouraging in the North, and it is not strange that the trend of emigration is now to the southward.

There are hundreds of thousands of farms, land of exceedingly fine character and perfectly adapted to the production of every crop, to be had in the South at half the price of Northern farms. There is one thing, however, which the farmer changing from North to South must carefully heed. Crops are not planted at the same times in the South as in the North, nor in the same way. The peculiarities of climate must be carefully noted. For instance, artichokes are marketed in the early spring, asparagus plants are grown from April to February and set in trenches in March, when but eleven months old. Beans are planted the last of February and marketed early in May, beets are planted in November and marketed in April, cabbage the same, cauliflower marketed in May and June, celery all the year, lettuce planted in November and marketed in March, onions marketed in May, peas planted in February and marketed in March and April, egg plants and tomatoes in April, Irish potatoes in May; while, together with strawberries, always grown from one year old plants, all these spring crops are received and the ground planted to corn or cow peas and the summer crops made.

Two or three crops may be grown in South Carolina as easily as one a season in the North, but the adaptation of crops and times of planting and manner of cultivation must be carefully observed. To the farmer who will go South and carefully study the conditions and use the same intelligence and industry that he does in the North, a ready competence awaits him.

New York. S. S. BOYCE.

"WHEN WILL THE SOUTH AWAKEN?"

(See Breeders' Gazette, May number.)

When will the South awaken? The South will awaken by the ordinary process of awakening, by shaking. When it makes use of the opportunity to plant without waiting for "de light ob de moon" or the dark "ob de moon to displant"—when it becomes cosmopolitan enough to afford two political parties, having a valuable opposition, as a great statesman put it—when a man loves his neighbor's hog better than his own, because the former he is quit of looking after, his love also extending to his neighbor's cow, which will come when he "fences in" and "not out"—when all country store accounts are gilt-edged securities and commercial credit is like Cæsar's wife—when "bugology" is brought down to a finer point, and fungi are all button ear-marked—then will the South give praise for every blessing known—a place earth envies for a home, her watch-words be "*nil desperandum.*"

Albemarle Co., Va. W. M.

Every farmer who keeps sheep should try rape this year, if only on a small plot, so as to learn how it grows and what it is worth. Get the Dwarf Essex variety, plant it in drills, and begin to use it as soon as it is well grown. It will grow again after being cut. Sow in July and August in rows or broadcast it. Those who grow it for sheep broadcast it over the field and turn the sheep on it at any stage of growth desired. It is now considered indispensable to all who keep sheep, but, as it is also relished by other stock, it will be found serviceable in providing a succulent food late in the season after grass is gone. It is also excellent for all kinds of poultry.

It is a moderate statement to make that the annual income from 100 ewes can be made to amount to $500. I know that 100 ewes and their lambs will not consume so much food value as 10 milch cows ought to have, and it involves more labor to care for the cows than it does the sheep, leaving out of the question entirely the tedious task of milking the cows and cleansing milk vessels twice a day. How many dairymen get an income of $800 from 10 cows?—*Dr. Galen Wilson.*

CENSUS OF LIVE STOCK.

A distinctive feature of the coming census of live stock is that provided for on a special schedule, by which all domestic animals not on farms and ranges will be enumerated.

The preliminary investigation necessary to formulate an adequate plan for taking the live stock of the country disclosed that no census of domestic animals could be satisfactory that did not include the many thousands to be found everywhere off the farms. It likewise disclosed that there was no provision in the census law for compensating enumerators for carrying and filling in live stock schedules in cities and villages.

However, the main schedule was prepared and printed, with some new features of classification, which will show the number on farms in the United States on June 1, 1900, thus: Calves, lambs, colts and mule colts, under 1 year old; steers, 1, 2, 3 and over; heifers, 1 and under 2; "cows kept for milk," 2 and over; "cows and heifers not kept for milk," 2 and over; bulls, 1 and over; horses and mules, 1, 2 and over; ewes, 1 and over; rams and wethers, 1 and over; swine, goats, asses and burros, all ages.

This age classification was designed to afford a basis from which to calculate approximately the number of live stock by age for a given year in the future, as well as the probable increase or productivity of cattle and sheep for any future season prior to the thirteenth census, which census will furnish a new foundation for such calculations.

But such a basis would be very imperfect if it failed to include the cattle, sheep, goats, swine, horses, and mules, on trains and otherwise in transit on June 1, 1900; the number in stock-yards at terminal and initial points, and the number in distillery, brewery and other feeding yards and pens; in livery and boarding stables, private and other barns and enclosures in all villages and cities; in lumber, contractors' and mining camps; in street railway, express, delivery, omnibus, saw-mill, and factory stables, etc.

As the number of animals thus described was estimated at several millions, and their valuation was believed to be higher, animal for animal, than that for similar stock on the farm, Director Merriam felt warranted in asking Congress for authority to provide specially for their enumeration. His request was granted, and a special schedule was prepared, on which will be gathered all live stock not on farms and ranges, the classification to be the same as on the main schedules.

It is interesting to note that these rather elaborate census preparations come at a time when there is a very sharp increase in the value of all save sheep and milch cows. From the statistics of the Department of Agriculture is made the following table showing the number of live stock on farms, the date for each year being January 1st:

Number of Live Stock on Farms and Ranges.

	1898.	1899.	1900.	Increase in 2 years.	Decrease in 2 years.
Sheep	37,656,900	39,114,453	41,883,065	4,226,165	
Milch cows	15,840,886	15,990,115	16,292,360	451,474	
Other cattle	29,284,197	27,994,225	25,610,054		1,654,143
Mules	2,257,665	2,134,213	2,086,027		171,638
Horses	13,960,911	13,665,307	13,537,524		423,387
Total	98,980,619	98,898,313	101,409,030	4,627,579	2,244,168

The increase in the aggregate value and the average value per head for the period mentioned has been marked, as information drawn from the same authority, and arranged as follows, shows:

Kind.	1898. Total Value.	Per Head.	1899. Total Value.	Per Head
Sheep	$96,721,133	$2 46	$107,697,530	$2 76
Milch cows	434,813,826	27 45	474,233,925	29 65
Other cattle	612,296,634	20 92	637,931,135	22 79
Mules	99,032,062	43 88	95,963,261	44 96
Horses	478,362,407	34 26	511,074,813	37 40
Total	$1,721,226,062		$1,826,900,664	

Kind.	1900. Total Value.	Per Head.	Increase over 1898. Total Value.	Per Head.
Sheep	$122,665,913	$2 93	$25,944,780	$0 47
Milch cows	314,812,106	31 60	79,998,280	4 15
Other cattle	689,486,260	24 97	77,189,626	4 05
Mules	111,717,092	53 56	12,685,030	9 68
Horses	603,699,442	44 61	125,607,035	10 35
Total	$2,042,650,815		$321,424,751	

Add to the above the figures for swine, goats, asses, and burros, on the farms and ranges, and for the several million head of animals not on farms and ranges,

and the great importance of an adequate census of live stock becomes apparent.

It means approximately three billions of dollars—an item of wealth too great to be comprehended, and which leads Director Merriam to say: "If all owners and possessors of live stock shall make full and accurate returns, the census of that property for 1900 will not only be more perfect than any of its predecessors, but such as to astonish the world by its magnitude."

SOME PHENOMENAL PREMIUMS.

Probably the largest premiums of the character ever offered are those on this year's list of the Southern Inter-State Fair for grain, hay, potatoes, pumpkins, etc. Two hundred and fifty dollars is offered for the best bushel of wheat; $250 for the best bushel of oats; $250 for the best twenty ears of corn, and $250 for the best twenty stalks of cotton. The same sum is also offered for the best bale of hay, the best bushel of sweet and Irish potatoes, and the largest pumpkin.

This radical departure from the customary amounts offered for these products has been decided upon by the Fair Association as a means of awakening general interest in the cultivation of grain and other field crops in the Southern States. The contest, however, will not be confined to Southern exhibitors, it being the belief of the management that the best way to develop Southern agriculture is to let all sections compete, thus illustrating, by comparison, what can be accomplished with intelligent effort. The Association will not charge for space or entrance in this contest.

The Southern Inter-State Fair will be held in Atlanta, Ga., October 10th to 27th, and Secretary T. H. Martin will be glad to supply any further information desired by our readers regarding these Giant Premiums; for this is the name which the Association has given these unusual prizes.

GOVERNMENT WHITEWASH.

The Government's whitewash recipe is as follows: Take half a bushel of unslaked lime, slake it with boiling water, cover during the process to keep in steam, strain the liquid through a fine sieve or strainer, and add to it a peck of salt previously dissolved in warm water, three pounds of ground rice boiled to a thin paste and stirred in while hot, half a pound of powdered Spanish whiting, and one pound clean glue previously dissolved by soaking in cold water and then hanging over a slow fire in a small pot hung within a larger one filled with water. Add five gallons hot water to the mixture, stir well, and let it stand a few days, covered from dirt. It should be applied hot, for which purpose it can be kept in a kettle or a portable furnace. Coloring matter may be added as desired. For cream color, add yellow ochre; pearl or lead, add lamp or ivory black; fawn, add proportionately four pounds of umber to one pound Indian red and one pound common lampblack; common stone color, add proportionately four pounds raw umber to two pounds lampblack.

For interior work: Slake a peck of lime till it is thick and creamy. While it is hot mix with a pint of linseed oil and one-quarter pound of glue previously dissolved in water. Let the mixture stand several hours before applying it. A little lampblack dissolved in vinegar and mixed with whitewash gives a grayish tint, which may be preferable to pure white; a little umber gives a fawn color, and yellow a cream tint. Very little coloring matter should be used, or the shade will be too dark.

TABLE FOWLS.

When the object is to have choice table fowls for home use (not for market) get Langshan hens and mate them with Dorking or Indian Game males. Do not keep any of the young stock, either pullets or cockerels, as the pullets will not prove as good layers as their dams. The Langshan is itself a fine table fowl, and the hens are prolific layers, but the Indian Game or Dorking male improves the quality of flesh in the chicks, and produces something excellent that cannot be purchased in the market. The Langshan is also a very hardy fowl, but Dorking or Indian Game chicks are not as easily raised as some others until they are three months old, but after that period are like young turkeys—hardy and able to easily care for themselves. For market the best chick is the one that is hardy and most easily raised.

POULTRY HOUSES.

The simplest poultry house is the best. Better results have been obtained by using the old and well-known plan of having a house eight feet in front and six feet in the rear, ten or twelve feet square, with a window on the southside than from any other, and such a house costs but little, holding a flock of from a dozen to twenty fowls. The poultry house for a cold climate may be plastered, as warmth will always be a prime factor in egg production in winter, and the plastered walls will be of immense advantage in preventing lice from hiding in summer. One of the points to observe is that a good shed is better in summer than a close house, and will cost but little. It must be tight at the back and sides, as drafts of air, even in warm seasons, will do damage. Fowls can endure cold weather or stand the warmest days of summer, but will not thrive where drafts of air come on them at night. The cost of a poultry house is the matter that causes the beginner to consider. It is not necessary to bother about ventilators and other appliances. Make the house as simple in design as possible, and the cost will be a minimum and the fowls comfortable. Get a hardy breed, leave the doors and windows open at night, clean frequently, so as to prevent foul odors, use plenty of whitewash, and the fowls will not be unthrifty in a cheap house. —*Poultry Keeper.*

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PUBLISHERS' NOTES.

The Oldest Agricultural Journal.

Several of our agricultural contemporaries have been recently discussing the question as to which is the oldest agricultural journal published in this country. The *Country Gentleman* claims for itself this position, dating its age from January, 1831. As a matter of fact, there was no such paper as the *Country Gentleman* issued in 1831. The *Genesee Farmer* was first published in 1831, and continued to be issued until 1839. The *Cultivator* was first issued in 1834, and continued to be published until 1865. These two journals were consolidated and became the *Country Gentleman*, so that really it only dates back to 1865. The *Southern Planter* was established as the *Southern Planter* in 1840, and has been published ever since, being now in its sixty-first year of issue. During all this time it has always been published where first issued, at Richmond, and has always held the position of the leading Southern agricultural journal. It may on this record fairly claim that it is the oldest agricultural journal in the country. It is the only one, so far as we know, that is now issued under the name which it assumed when established, and which has never changed its place of publication, and which is now over sixty years of age. We make these remarks not in any way in disparagement of the *Country Gentleman*, which is a most excellent journal and ably edited, but simply as a matter of justice. We realize as fully as any one that "Age is not synonymous with wisdom;" but it is at any rate a testimony to the esteem in which a journal is held by those in whose service it has been issued. To Southern farmers we owe a debt of gratitude which we are proud to acknowledge. They have made it possible for us to pass our sixtieth birthday and to

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Indexing the Enquirers' Column.

A subscriber asks whether it would not be possible for us to index the Enquirers' Column without too much trouble and expense. We realize that an index to this column would be of great service in making more available the mass of valuable information contained therein; but for want of space on our front cover have not been able to provide the same. We are endeavoring to arrange, however, for a detailed index to appear in some part of the journal each issue.

MAGAZINES.

One of the most notable articles The Century has ever printed is "The Problem of Increasing Human Energy," contributed to the June number by Nikola Tesla, the electric investigator. Mr. Tesla regards mankind as a body in motion, and addresses himself to the problem of increasing its force. This can be done in three ways—by increasing its mass, reducing its friction, and adding to its velocity. To each of these ways of increasing human energy, Mr. Tesla announces one or more contributions, presenting for the first time photographic views of recent experiments with electrical forces of enormous voltage. His paper combines philosophical theorizing with the record, now for the first time made, of experimentation in many directions.

In the department of pure literature, the current Century is notable as containing hitherto unpublished poems by James Russell Lowell, and new poems by Edmund Clarence Stedman and Thomas Bailey Aldrich. Governor Roosevelt writes with deep conviction of reform and reformers, putting in a plea for compromise or "agreement," and warning practical reformers that they must not only fight the bad opposed to them, but ignore the Quixotic good. Related to this article is one on the need of reform in the consular service, by Harry B. Garfield. The origin of "the Lincoln rail" in the campaign of 1860 is described by one who heard the story from ex-Governor Oglesby, its originator. Miss Dorothea Klumpke, the American astronomer, tells of her night ride in a balloon, last November, from Paris to the coast, in unsuccessful quest of leonids; Richard Whiteing writes, with Gallic lightness, of life on the boulevards in his series on the Paris of to day; and Charles de Kay chats of Hubert Vos's portraits of typical natives of China, India, Hawaii, Java, etc. Four of these portraits are reproduced. The number abounds in fiction, including Dr. Mitchell's "Dr. North and his Friends," and five short stories, two in different keys by Albert Bigelow Paine, and the other three having political bearings.

St. Nicholas for June is an interesting number for the children. There are fairy stories, and other stories more or less true, humorous and serious pictures, and accounts of the doings of birds and reptiles, plants and trees.

The New Lippincott Magazine.—General Charles King, who, as Captain King, is known as one of the most popular novelists of the day, has achieved a new success in the complete novel published in the June "New Lippincott." "Ray's Daughter: A Story of Manila," is second to none that he has written. The heroine is the daughter of "Billy Ray," famous among Captain King's past creations.

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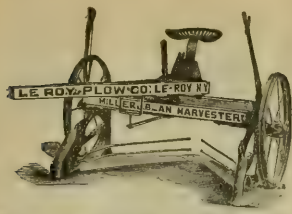
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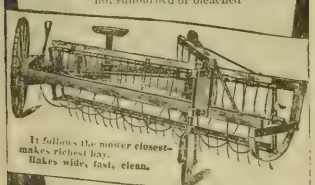
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She goes as a Red Cross nurse to the Philippines, where she is wooed by a gallant American volunteer, who has by no means an easy time of it, but whose perseverance bears fruit at last. A fine etching of General King, taken in uniform, appears as a frontispiece in this number.

Stephen Crane's crisp, distinctive description of "The Battle of Bunker Hill" is a masterpiece. This is his fourth paper in the "Series of Great Battles of the World." "Elizabeth Patterson" [Madame Jerome Bonaparte], by Virginia Tatnall Peacock, is anecdotic and entertaining reading, and promises well for the forthcoming volume, entitled "Belles of America," of which this is a chapter. A curious custom among Mormon "old folks" is an annual dance. Of this we get a good idea in Mrs. J. K. Hudson's last Mormon story, called "One of the Lord's People." It has, beside the pathetic side, which is never absent, a gleam of humor and some fresh amusing anecdotes about Brigham Young.

The Forum for June has articles on "The Attitude of the United States towards the Chinese," by Ho Yow, Chinese Consul-General to the U. S. "The Present Position of the Irish Question," by J. E. Redmond, M. P. "Do we Owe Independence to the Filipinos?" by Charles Denby, late U. S. Minister to China. "U. K., U. S. and the Ship Canal," by Sir Chas W. Dilke. "The Pre eminent Profession—a Rejoinder," by Rev. H. A. Stimson. The number is an excellent one.

Rudyard Kipling, Dr. S. Weir Mitchell, Ian Maclaren, Cyrus Townsend Brady, Julia Magruder and Mrs. Burton Kingsland are among the contributors to the June Ladies' Home Journal. Some of its notable features are: "The Passion Play this Year," "The Richest Woman in America" (Hetty Green), "How Some Familiar Things Came to Be," and "The Masterpiece of Mary, Queen of Scots," picturing an apron worked by that unfortunate sovereign while in prison awaiting the executioner. Dr. S. Weir Mitchell's article, "When the College is Hurtful to a Girl," is sure of a wide reading; so are Ian Maclaren's views on "The Minister and His Vacation." Mr. Kipling's "Just-So" story humorously accounts for the kangaroo's long hind legs, and is the best of his series. The fiction features of the June Journal are the opening chapters of Julia Magruder's new serial, "The Voice in the Choir," and "The Autobiography of a Girl." The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

The American Monthly Review of Reviews for June is a well-illustrated number. The important new topics of the month are editorially treated in "The Progress of the World," the opening department. A character sketch of James J. Hill, a "Builder of the Northwest," is contributed by Mrs. Mary Harriman Severance, who outlines the remarkable career of the president of the Great Northern Railroad. Dr. Albert Shaw, the editor, writes from full knowledge on "Paris and the Exposition of 1900." Mr.

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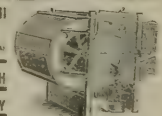


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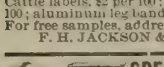
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Jacob A. Riis, author of "How the Other Half Lives," forecasts the work of the New York Tenement-House Commission recently appointed by Governor Roosevelt. Mr. Cleveland Moffett writes on "Automobiles for the Average Man." Mr. Charles A. Conant describes the operation of the refunding law passed by Congress last March. There are also illustrated articles on summer camps for boys, the Passion Play at Oberammergau, and new fiction for summer reading.

CATALOGUES.

American Ginseng, published by American Ginseng Gardens, Rose Hill, N. Y.

Chicago House Wrecking Co., Chicago, Ill.

Columbus Threshers and Horse Powers, manufactured by the Belle City Mfg. Co., Racine Junction, Wis.

PAMPHLETS.

The Union Stock Yard and Transit Co. of Chicago. Thirty fourth Annual Live Stock Report, 1899, and Summary for years 1865 to 1899.

The World's Horse Market, Union Stock Yards, Chicago, Ill.

The Nicaraugua Canal: Would it Pay the United States to Construct It? Remarks of C. P. Huntington at the Chamber of Commerce of Galveston, Tex.

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U. S. Department of Agriculture, Washington, D. C. Division of Agrostology. Bulletin 14. Economic Grasses.

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Division of Botany. Bulletin 24. The Germination of Seeds as Affected by Certain Chemical Fertilizers.

Division of Entomology. Bulletin 23. Some Insects Injurious to Garden Crops.

Office of Experiment Stations. Bulletin 79. Farmers' Institutes—History and Status in the United States.

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Section of Foreign Markets. Circular 22. Agricultural Imports and Exports, 1895–1899.

Division of Statistics. Bulletin 117. The Cotton Crop of 1898–99.

Farmers' Bulletin 19. Important Insecticides. Directions for Preparation and Use (Fourth Edition).

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Crop Reporter, May, 1900.

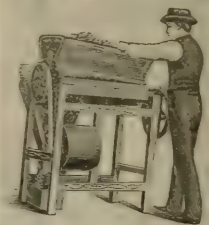
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Bulletin 33. An Inquiry into the Cause and Nature of Crown Gall.

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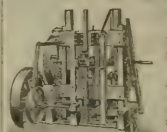


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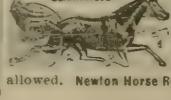
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Bulletin 172. Continuous Pasteurization of Milk.

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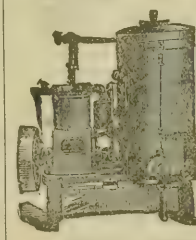
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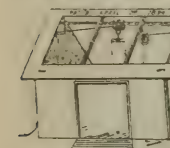
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PAINT TALKS—XXVIII.

The Effects of Smoke.

In the days when timber was an encumbrance to the land, and where wood was the cheapest fuel, some varieties of paint achieved a reputation for durability which modern experience finds entirely unwarranted. As a consequence, the old inhabitant blames the paint manufacturer, and shakes his head sadly over modern degeneracy.

In some instances, perhaps, the paint manufacturer of to-day finds his profit in using materials inferior to those employed by his predecessors; but in most respects his materials and his methods are vastly in advance of earlier practice. He knows much more about pigments and vehicles than was ever before known, and his machinery has developed into forms calculated to produce the best and most uniform results. He has also at his disposal all the materials known to an earlier generation, with many valuable additions, and he is informed, as his predecessors were not, as to their qualities and capabilities.

Something then, other than the degeneracy of human nature, must have supervened to upset accepted paint traditions.

One such thing is certainly the different quality of the smoke of to-day from that of the last generation. In the smoke from wood fires there is nothing especially injurious to lead paints, which were looked upon as the standard by our great grandfathers; but in coal smoke there one substance so deleterious to lead compounds as to forbid their use in localities where such smoke is most abundant.

The ingredient of modern smoke that is so injurious to paint is sulphur, which has a strong affinity for lead compounds, turning them into the black sulphide of lead and disintegrating the paint. Eminent engineering authorities have expressed the opinion that to the increase of coal smoke more than to any other one cause is due the poor showing made by modern white lead.

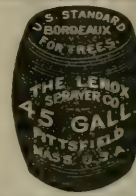
But there is another point, easy to overlook, that may take some of the burden of the blame from the smoke, and that is the fact that in the good old days when people paid more attention to facts than to names, a great deal of very good combination paint was sold under the venerable title of "white lead." In fact, it has been but a very few years since consumers began to be persuaded that all "white lead" was not "strictly pure" white lead from the corroding house.

The combination paints were always good, and are better to-day than ever before. They contain zinc white, which is absolutely unaffected by coal smoke. White lead is also made to-day better perhaps than ever before in the history of the trade; but whereas white lead to-day means the unalloyed article, formerly it meant (to the consumer at least) any good standard white paint—and generally it meant, in practice, combination paints largely compounded with zinc white. Coal smoke beats in vain against paints of this character, and zinc white, instead

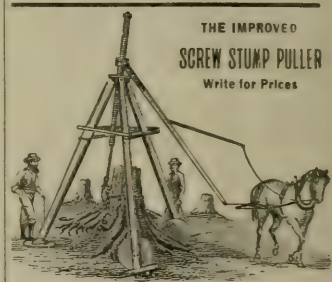
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819 E. Main St., Richmond, Va.

For Sale A RAPPAHANNOCK FARM
18 miles below Fredericksburg, containing 750 acres, 600 under cultivation or in grass, 400 fruits, well watered and in good condition. Dwelling with 11 rooms; best water in yard; grounds and view very fine. Healthy. 8 acres in fruit. In a mile of two wharves, and in four hours run of Washington. Terms liberal.

W. R. TAYLOR Comorn P. O., King George, Co., Va

Four Blue Grass Stock Farms
In Smyth, Washington, and Wythe Counties, Virginia. Fine for Grazing, Farming and Fruit Growing. For particulars, call on or write

GEO. W. RICHARDSON, Marion, Va

Virginia Farms
All prices and sizes. Free list on application.

WM. B. PIZZINI CO., Richmond, Va.

FINE FARMS
in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address SAM'L B. WOODS, Charlottesville, Va.

VIRGINIA FARMS
$3 PER ACRE AND UPWARDS.
EASY PAYMENTS. CATALOGUE FREE.
GEO. E. CRAWFORD & CO., Richmond, Va.

Butter-Maker and Milker.. Desires Situation.
Married, and willing to work on a reasonable salary to start with, and house to live in.

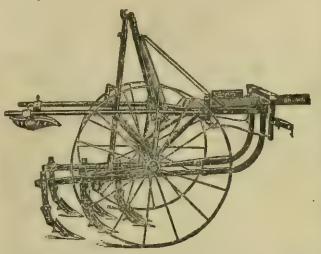
"T. J. C.," 1032 Twenty-ninth Street, Newport News, Va.

of being detrimental, is really the salvation of lead paints.

STANTON DUDLEY.

CORN CULTURE.

Thorough cultivation is more and more becoming the motto of the successful corn-grower, and more and more does he realize the importance of having for this work the cultivator which can be run with the greatest ease to man and team, doing the most work in the best and most thorough manner Many improvements have been made in the methods of corn culture in the past twenty-five years. Manufacturers have invented and perfected many cultivators, but none have succeeded in producing a more satisfactory implement than those made by the Brown Manufacturing Company, of Zanesville, Ohio.



The accompanying illustration shows the Brown Hammock Seat Riding Cultivator, a new pattern, made with long, direct draft beams. It is hung on compensating coil springs, which makes it easy to raise or lower. It balances nicely to weight of operator. This is only one of many styles of cultivators, harrows, shovel plows, steel shapes, etc., made by the Brown Manufacturing Company. Don't fail to get their catalogue before you begin work in the corn field, and in writing them please mention this paper.

HOUSEWORK WAS TOO MUCH.

MANCHESTER, VA., *May 21, 1900.*

Mrs. James Johnson of this place states that in the spring she was feeling very bad, and continued to grow worse until she could not do her housework for a family of three She sent for a bottle of Hood's Sarsaparilla, and it did her much good. She took three bottles that spring, and has taken it every spring since, with excellent results.

OWENSBORO WAGONS.

The Owensboro wagon was the only wagon that received a diploma and medal at the Nashville Exposition. The "why" can no doubt be discovered by reading the advertisement of the Owensboro Wagon Co., Owensboro, Ky., to be found elsewhere in this issue.

CREAM SEPARATORS.

The Automatic Cream Separator Co.' Quincy, Ill., sends us a lot of testimonials as to the merit of their "Automatic" Separator. This firm is advertising for agents elsewhere in this issue.

ORGANIZED 1832.
THE VIRGINIA FIRE & MARINE
VIRGINIA Insurance Company.

RICHMOND, VA.

ASSETS. - $800,000.

DIRCTORS:
Wm. H. Palmer, D. O. Davis,
E. B. Addison, Wm. Josiah Leake,
W. Otto Nolting.

WM. H. PALMER, - - President.
W. H. McCARTHY, - - Secretary.

PUMPKIN SEED
From selected specimens of the VIRGINIA MAMMOTH. I have so carefully propagated this variety during the last few years, that they now grow truly immense, and keep until February I grew 100 tons in the corn last year at no additional expense. For cattle, sheep and hogs they are equal to bran or other expensive feeds. Sow at planting time mixed with corn in planter, or two or three weeks later, and it will invariably be to your profit. One pound will sow two acres. Price, 30c. per pound, delivered.

E. C. BELLWOOD,
DREWRY'S BLUFF, VA.

"NORFOLK, VA."—Near the Sea.
There are cheap and beautiful homes in the "Sunny South," near the sea, and near that thriving seaport city, Norfolk, Va., for thousands of people who want happy homes in a mild, healthful, and delightful climate, a kind and productive soil, the very best markets in the world, the very lowest freight rates, good social, educational, and religious privileges, and the greatest number of other both natural and acquired advantages, to be found in any other one section of the Union.

The "CORNUCOPIA" tells you all about the beautiful section of country around Norfolk, Va. Send for (free) sample copies.

Address "CORNUCOPIA," 212 Main St., Norfolk, Va.

For Sale Farm of 100 Acres, Near Crewe, Va.
The Norfolk and Western Ry. has its shops at this point. House of 3 rooms, nice shade. One mile from town. Price, $850

"BARGAIN," care So. Planter.

When you write to an advertise mention THE SOUTHERN PLANTER.

Poland-China Hogs,
Coach Dogs,
Collies and Greyhounds,
Belgian Hares,
Book on Hares free.
White Leghorns,
Black Minorcas,
Barred Plymouth Rocks,
Pit Games,
Pekin Ducks,
White Holland Turkeys.
EGGS for Hatching.
INCUBATORS.
JOHNSON & GOODE,
BOYDTON, VA.

Eggs for Hatching

Plymouth Rock, Light Brahma, Brown Leghorn, Indian Game and Pekin Duck Eggs at $1.00 per setting, securely packed. A few well bred SHEPHERD PUPPIES. Can send pairs not akin at $5.00 each. Also a nice lot of FOX TERRIER PUPPIES at $5.00 each. Several young BERKSHIRE BOARS large enough for service at $10.

M. B. ROWE & CO.,
Fredericksburg, Va.

Green Valley Poultry Yards.

EGGS FOR HATCHING.

White and Barred P. Rock, S. C. B. Leghorn, White Wyandotte and Lt. Brahma Eggs, 26 for $1.00.

C. H. BENNETT, McDonald's Mills, Va.

The IMPROVED **VICTOR Incubator**



hatches all the fertile eggs; is simple, durable and easily operated; 168 page catalogue containing information and testimonials. Sent free. GEO. ERTEL CO., QUINCY, ILL.

Tamworth and Poland-China A few nice PIGS for sale of each kind, entitled to registration.

J. C. GRAVES, Barboursville, Va.

"JUST AS GOOD."

The farmer has probably had more than his share of experience with articles that are "just as good." He knows what it is to buy a "just as good" plow that wears in soft spots and will not scour; a "just as good" corn-planter that drops anywhere from nothing to a dozen grains in a hill, or a "just as good" grain drill that forgets whether it is adjusted to seed pecks or bushels. He has been there when a "just as good" cultivator persisted in prancing around and gouging out or burying half the hills; and when the "just as good" hay fork and carrier broke loose and fell with murder in its eye, he was not far away.

He has also been in the hay field when the wire or slough grass stood up and mocked the "just as good" mower, and seemed to say: "Thus far shalt thou come and no farther." The "iron has entered his soul" when the iron of his "just as good" machinery, which the agent said would wear forever, has snapped before his eyes like brash timber, giving Johnnie occasion to chase to town for repairs. He has known what it is to watch his overripe grain crinkle and droop in the harvest sun, as though reproaching him for his blunder in buying a binder that broke down in the middle of harvest, with the nearest repairs a hundred miles away. Yes, the farmer has had enough and to spare of "just as good" machinery.

You often hear the salesmen of other machines say "just as good as McCormick," BUT YOU NEVER hear a McCormick salesman say "just as good." The McCormick is the best in the world.

A FEW POINTS ON THE WATER SUPPLY OF FARMS.

The Indiana State University, in the year 1899, made an exhaustive investigation on the Wabash river, and found that hogs using water out of the river and the creeks and bayous adjacent had more cholera than those away from streams, and that those using water out of bored wells only were entirely free from cholera. In this case it is best to get the deep bored well and use only pure water. The trouble has always been, the cost of bored wells is more than farmers could afford. The natural question is, What can they be drilled for now? In reply to the anticipated query, I will say the boring of such a well should not cost over 75 cents per foot through the hardest, flinty and most creviced limestone or even granite. To bore such wells, I have well-boring machines to sell. Circulars free. Address,

CHAS. E. WYMAN,
Martinsburg, Ind.

LYNNWOOD STOCK FARM.

Farmers needing thoroughbred Percheron or Kentucky horses, Shorthorn cattle or Berkshire hogs are invited to write the above farm, of which Mr. J. F. Lewis, Lynnwood, Va., is proprietor. In his advertisement, to be found elsewhere in this issue, Mr. Lewis offers some fine specimens of their respective breeds, and solicits correspondence with prospective purchasers.

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va.
WALTER WATSON.

ANGORA GOATS

A New and Profitable Enterprise.



Do you know that Angora Goats will clear and enrich your trash and rocky land, and that they are more profitable, and subject to fewer diseases than Sheep? Write to

RURAL VALLEY STOCK FARMS,
Green Spring Depot, Va.
GEO. McD. BLAKE, Mgr.

SWIFT CREEK STOCK AND DAIRY FARM.



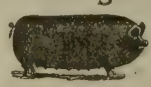
150 YOUNG THOROUGHBRED **JERSEY HEIFERS and BULLS.**

FOR SALE AT HARD PAN PRICES.

Blood of the famous **Stoke Pogis, St. Lambert and Coomassie** blended. Paying special attention to breeding my cattle, I have reached a degree of excellence not surpassed by any herd in the State. POLAND-CHINA Pigs always on hand. Write for what you want.

T. P. BRASWELL, Prop., Battleboro, N. C.

Essex Pigs and Southdown Sheep



If you wish to purchase Essex Pigs and Southdown Sheep thoroughly acclimated and eligible to registry, address L. G. JONES, Bethania, N. C.

Also Half Dorset Lambs for sale.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

ASA B. GARDINER, Jr., Manager,
GLENCOE, MD

The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.

We mail a little "Book of the Herd" on request.

ROCK HILL FARM.

Shorthorns, Shropshire Sheep
..AND..
Poland-Chinas

A Few Choice Gilts Unbred..

B B. BUCHANAN,
BROWNSBURG, VA.

W. W. BENTLEY,
PULASKI CITY, VA.,
. Breeder of..
Shorthorn Cattle

ALL STOCK RESERVED FOR PUBLIC SALE IN EARLY FALL.

THOMPSON & TRIMBLE,
SWOOPE, AUGUSTA CO., VA.
Breeders **Shorthorn Cattle** and ..of.. **Shropshire Sheep.**
...CORRESPONDENCE SOLICITED

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

SUMMER SCHOOL IN HORTICULTURE AT A. & M. COLLEGE OF TEXAS.

BEGINS JUNE 18, AND ENDS JULY 28, 1900.

The object of this short course in horticulture is to teach some of the fundamental principles underlying successful fruit culture and truck farming in Texas to those who may care to take the work. The lectures will be especially prepared to benefit one actually engaged in this work, or who may contemplate doing so, but who has not the time nor means to take a full collegiate course. The more difficult obstacles in the way of success along these lines will be made a special feature of this course.

DEPARTMENT OF HORTICULTURE AND MYCOLOGY.
Professor Price.
Assistant Prof. Ferguson.

Instruction by lectures, and practice in garden, orchard and vineyard. Subject 18 includes "Plant Life," "Fungous Diseases." Subject 19 includes "Fruit Culture" and "Truck Farming."

DEPARTMENT OF CHEMISTRY.
Professor Harrington.
Associate Professor Tilson.

General Chemistry.—The subject will include thirty lectures in general chemistry, and when time will permit, in organic chemistry. ASSOCIATE PROF. TILSON.

Agricultural Chemistry.—Eighteen lectures. Chemistry of soils and fertilizers, plants and feed stuffs. Chemistry of the oils and fats, including butter. Special attention will be given to the different types of soils in the State, and to the composition and application of fertilizers.
PROF. HARRINGTON.

DEPARTMENT OF ENTOMOLOGY.
Professor Mally.

Discussions of the most important problems of insect injury in thirty-six lessons. Those receiving this announcement will confer a great favor by submitting a list of the insects most harmful in their respective localities. So far as possible, the course of lectures will be arranged to discuss the problems and injuries in which the people are most directly interested, and which will be indicated by the information and suggestions given in response to this request.

DEPARTMENT OF BOTANY.
Professor Ne-s.

Systematic Botany of the flowering plant will be offered to such students as are sufficiently acquainted with Structural Botany to go on with systematic work, and will consist of two lectures and five hours practice a week.

Structural Botany, or the study of plant organs, tissues, cells, and their contents, and also the functions of each part will be considered.

Board and lodging charges will be made as follows:

For the term of six weeks,	$18.00
" " " four weeks,	12.50
" " " one week,	3.50

Board must be paid for in advance for as much as two weeks.

Tuition, $10 per term. Option will be allowed in all studies.

R. H. PRICE,
Prof. of Horticulture and Mycology.
P. O., College Station, Texas.

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POLAND-CHINA PIGS
FOR SALE
From Registered Sire and Dam; also a few Boars ready for service. J. J. GILLIAM, Travis, Va.

ELLERSLIE FARM
Thoroughbred Horses
AND SHORTHORN CATTLE,
Pure Southdown Sheep and Berkshire Pigs.
FOR SALE. R. J. HANCOCK,
CHARLOTTESVILLE, VA.

We Bind...
Your Magazines, Southern.. Planters, or any other books
PRICES LOW.
Satisfactory work guaranteed.
Job Printing Neatly Executed.
S. B. ADKINS & CO.,
RICHMOND, VA.

FARMERS' LIBRARY!

SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
FERTILITY OF THE LAND,	$1.25
FEEDS AND FEEDING, -	$2.00
TOBACCO: How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

The McCORMICK VERTICAL CORN BINDER



is the only Corn Binder made that will cut and bind corn under all the unfavorable conditions in which the corn is found at cutting time.

It will cut and bind BIG CORN, LITTLE CORN, DOWN CORN, LODGED CORN or any other kind of corn that grows in rows

It makes tight bundles of convenient size and the corn can be husked by hand without untying bundles or it can be husked and the fodder shredded by the McCormick Husker & Shredder.

CALL ON THE McCORMICK AGENT.

ORIGIN OF THE MONTHS' NAMES.

October, November and December Misnomers for Tenth, Eleventh and Twelfth Months.

"January was named after the Roman god, Janus, the deity with two faces, one looking into the past and the other gazing forward to the future," writes Clifford Howard in the June *Ladies' Home Journal*. "February comes from the Latin word *februo*, to purify. It was customary for the Romans to observe festivals of purification during that month. March owes its name to the old God of War. Among the Saxons this month was known as Lenct. meaning spring; and this is the origin of our word Lent. April was named from the Latin *aperio*, to open, in signification of the opening of flowers. The Saxons called the month Eastre, in honor of their Goddess of Spring, from which comes our word Easter. May was named after the Roman goddess Maia, and June was so-called in honor of Juno. July was named in honor of Julius Cæsar, and August gets its name from Augustus Cæsar. September is from the Latin *septem*, seven, this being the seventh month according to the old Roman calendar. October, November and December also retain the names by which they were known under the old calendar, when there were but ten months in the year—*octo*, *novem* and *decem*, meaning eight, nine and ten."

CHICKAMAUGA HAY PRESSES AND PEA HULLERS.

The Chattanooga Implement and Manufacturing Co., East Chattanooga, Tenn., is advertising in another column the above well known hay presses and pea hullers. Our readers are requested to send for descriptive circulars and prices. These machines have the strong endorsement of numerous farmers in the South.

..Sunny Bank Poultry Ranch..

Barred Plymouth Rocks EXCLUSIVELY.

Good blood will tell. We keep the best strains, viz.: Thompson's, Bradley Bros and Mills.

LOOK! 20 EGGS FOR $1.00, after June 1st, and 100 for $4.00, from our best pens. All orders promptly filled with strictly fresh eggs.

GARNETT BROS.,
MITCHELLS, VIRGINIA.





LAYERS and BROILERS.

Professional Poultrymen now call for a strain of **B. Plymouth Rocks BRED** for this purpose. We have supplied such for several years. And they know. See? It costs little to try at $1 00 per setting for eggs; $1.00 up for stock. Staying behind may cost more. Interesting illustrated catalogue free. Fine references. Address

GEO. HARRISON MORRIS,
ASHLAND, VIRGINIA.

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

IN THE LAKE COUNTRY

of Northern Illinois, Wisconsin, Minnesota and Michigan there are hundreds of the most charming Summer Resorts awaiting the arrival of thousands of tourists from the South and East.

Among the list of near-by places are Fox Lake, Delavan, Lauderdale, Waukesha, Oconomowoc, Palmyra, The Dells at Kilbourn, Elkhart and Madison, while a little further off are Minocqua, Star Lake, Frontenac, White Bear, Minnetonka and Marquette on Lake Superior.

For pamphlet of "Summer Homes for 1900" or for copy of our handsomely illustrated summer book entitled "In the Lake Country," apply to nearest ticket agent or address with four cents in postage, George H. Heafford, General Passenger Agent, Old Colony Building, Chicago, Ill.

THE INTERNATIONAL LIVE STOCK EXPOSITION,

——TO BE HELD AT——

UNION STOCK YARDS, CHICAGO, ILLINOIS, DECEMBER 1–8, 1900.

Everything is working very nicely to the success of the initial Exposition, and from general interest manifested, it is confidently expected that this will be the grandest event in the entire history of the live stock business.

It is intended to make this Exposition a university for the live stock industry of the world, to be greater in scope and character than that annually held at Smithfield, England. The agricultural colleges of this country will be in charge of the feeding demonstrations to determine the best methods of feeding animals for market and the best quality of feeding stuffs to make the most edible meat. The registered breeding associations will be in charge of their various displays.

This Exposition is organized as the result of the expressed wishes of the associated live stock interests of the country, and is under the direction of the pure-bred breeding associations and the rep-

C. C. Taliaferro,
NASONS,
VA.

"MOUNT SHARON" HEREFORD CATTLE
STOCK FARM."
Reg. and Grade BRONZE TURKEYS and MUSCOVY DUCKS
Registered SHROPSHIRE SHEEP
Registered POLAND-CHINA PIGS.





NOW OFFERS FOR SALE:

HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

POLAND-CHINA HOGS.—Pigs, six weeks old, $1 50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.

A Union of England and America

THE MUCH MOOTED QUESTION SETTLED.



N. BENJAFIELD. at Motcombe, Shaftesbury, England, and THOS. S. WHITE, of Lexington, Va., can explain this Union. N. Benjafield stands at the top for thoroughbred English Berkshires in his country, and as Thos S. White got his start from said Benjafield, then, of course, the said White has the best blood in America Fancy Pigs, but not fancy prices, now before the puplic.

Write to **THOS. S. WHITE, Lexington, Va.**

41 Pigs now Ready for Shipment, Some Ready for Service; Boars and Sows.

resentative stockmen of the United States. To further the interests of these associations through the betterment of the live stock of the continent, a practical demonstration was deemed essential, in the form of an Exposition to be held at the center of the live stock and meat packing industry of the country, and, so far, much progress has been made and information disseminated regarding the values of the pure bred animals. Primarily, the object of the Exposition is to display the wonderful improvement that has been made in live stock production, as well as to present further incentives for the further upbuilding of these interests in this country and other countries of the Western Hemisphere.

The Exposition is organized purely for exhibition purposes, *without capital stock and without a view to profit, there being no gate receipts.* It is the intention, if possible, to ultimately create a fund for the holding of these expositions in Chicago annually, the main support to be derived from the various pure breed associations and the affiliated interests.

It is proposed to make this the most complete exposition of everything pertaining to the live stock industry that has ever been attempted, and it should be to the interests represented what the World's Fair was to the general commercial interests of the country, as showing the great development that has taken place. In addition to American exhibits, there will be displays from foreign countries.

This great Exposition is to be held at the **Dexter Park Amphitheatre, Union Stock Yards, Chicago, Ill.,** a building which has recently been constructed for the purpose of pure-bred live stock exhibitions and sales. It is a commodious, electric-lighted, steam-heated structure, 600 feet long by 200 feet wide, and is admirably adapted for this world's live stock fair.

Purses amount to over $70,000, and the live stock, railway and business interests of the city of Chicago are backing it. Catalogues are ready, and will be sent on application. Information at hand goes to show that foreign countries will be well represented by exhibits and visitors, and this can be made a fitting rounding out of the nineteenth century that has seen such wonderful development in the live stock industry.

MAKING MONEY HAND OVER FIST.

ALBANY, N. Y., *May 5.*—There are now more than 1,000 agents selling the Wonder Spray Pump to farmers, gardeners, florists, fruit growers, etc. The best insect exterminator made. Sells on sight, and as the company allows liberal commissions, agents are making $2, $3, $5 and even $10 a day selling them. One agent has already sold over 1,000 pumps in one county, and the season has hardly begun. Another made $12 in one afternoon. Retail price places the pump within the reach of everybody who has a garden or greenhouse. To introduce them the company will send two pumps for $1 to agents who refer to this paper. Money returned if not satisfactory. Write to C. E. Morrison, Secretary, Box 152, Albany, N. Y., for full information.

Percheron, Grade Hackney and Kentucky Saddle Horses,

Berkshire Hogs and Shorthorn Cattle.

Now that good Pure-Bred Stock of all kinds is bringing remunerative prices, I wish to call the attention of prospective purchasers to the fact that having taken advantage of the depressed state of the Horse market since 1893, I am in a position to offer

PURE-BRED PERCHERON COLTS

of the best blood and conformation, at figures that will make money for the buyer.

I also have kept up a large and well-culled herd of

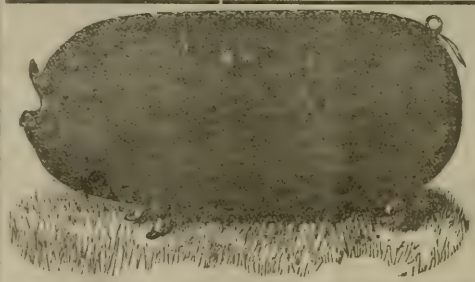
ENGLISH BERSKSHIRE HOGS,

and can give purchasers choice of 80 pigs. I will also sell a few Gilts and Sows at low figures, considering the breeding and quality of the stock. Selections made as orders arrive, first order gets first choice and so on; but I ship none but good ones, for I am not in the stock business for a day or a year, but for life, and I believe that a satisfied customer is the best advertisement I can put out.

Come and see for yourself, and you will be convinced that only the best are kept for breeders of the following breeds at LYNNWOOD STOCK FARM: Berkshire Hogs, Percheron, Grade Hackneys, and Kentucky Saddle Horses, and Shorthorn Cattle.

JOHN F. LEWIS,

ROCKINGHAM, COUNTY. **LYNNWOOD, VA.**



BIG ENGLISH BERKSHIRE

PIGS..

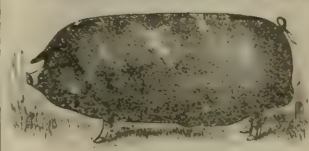
FOR SALE

3 months old June 10th. Pure-bred and eligible to registry. Sired by Biltmore's Longfellow, 4675; dam, England's Beauty, 7876. A splendid opportunity to get the best blood of the large English Berkshire for a small amount of money. $5. each, if taken at once.

Address J. SCOTT MOORE, "County News" Office, Lexington, Va.

TO WHOM IT MAY CONCERN.—*This is to Certify,* That we are personally acquainted with Mr. J. Scott Moore, breeder of Berkshire hogs. Know him to be a reliable and responsible gentleman, and persons will find it a pleasure to do business with him. A. T. Shields, Clerk Rockbridge County Court; R. R. Witt, Clerk Rockbridge Circuit Court; Thos. A. Sterrett, Sheriff of Rockbridge Co.; S. R. Moore, Treasurer Rockbridge Co.; Robert Catlett, Commonwealth's Attorney Rockbridge Co.; J. S. Saville, Supt. of Schools, Rockbridge Co.; T. E. McCorkle, Mayor of Lexington.

I have For Sale some VERY HANDSOME **POLAND-CHINA PIGS**



That will be ready for shipment 1st June. They are from the sons and daughters of Look-Me-Over, Chief Tecumseh II, J. H. Sanders, and others as noted in the breeding lists; also a couple of young boars ready for service. Also for sale **Shetland Ponies, Riding and Driving Horses, Red Polled Cattle and Pure-bred Shropshire Sheep, One Imported Buck for sale.**

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PACKET BOAT DAYS.

M. W. EARLY, LYNCHBURG, VA.

As I go swiftly over the C. & O. rail road, between Lynchburg and Richmond, along the line of the old "James River and Kanawha Canal," memory, carries me pleasantly back to "the good old days" of the packet boat. That mode of travel, which now seems so antiquated, so slow and tedious, was in harmony with the spirit and customs of old Virginia. We were a leisurely people, eminently social in our instincts and habits, and we did not care to rush through life, either travelling or at home.

When the James River and Kanawha Canal was built, the planters along its line looked on it as an immense stride in progress. Prior to this time, they had had to travel either by stage coach or by private conveyance, and to send their produce to market either in bateaux or in great covered wagons. Consequently, the use of the packet boat for their own travel, and of freight boats for their produce, was the greatest convenience to them, and the more so, as these boats would stop anywhere along the line to receive passengers or freight, instead of being able only to stop at certain stations, as is the case with railroad cars.

Although they had fine horses, which were changed every twelve miles, the packet boats travelled very slowly, making only four miles an hour, but so agreeable was the company on board that it almost dispelled any sense of tedium. Most of the passengers were from the flower of Virginia society, as the gentry along the banks of the James were the chief patrons of the packet boat, and they often met together with great social enjoyment on these trips. They would while away the time with conversation (which were the chief delight of old Virginians), or the gentlemen would play backgammon a great deal, and sometimes cards, I suspect, whilst the ladies often

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carried a little fancy work along with them. On a pleasant day the passengers would seat themselves on deck and watch the country unfolding itself like a beautiful panorama, as the boat moved along. Occasionally a warning cry of "*Low Bridge*" would make them bend down so as to avoid being struck as they passed under the bridge. Sometimes a party of persons would get out and walk from one lock to another, when the distance was not very great. Sometimes one of the passengers would have a violin or guitar along, and would favor the rest of the company with some music. Indeed, it was pleasant even to have the deck hands sing, as they had the rich, sweet voices peculiar to their race.

The country was in a state of high cultivation then, as we had plenty of slave labor, and we would pass by great expanses of wheat, corn, clover and tobacco. Passengers noted with special pleasure and interest the admirably tended estate of old Gen. Cocke, in Fluvanna county, with its substantial stone walls, great farm clock, and temple erected to temperance, with a great stone pitcher near at hand, overflowing with water. A little lower, but on the other side of the river, stood the elegant residence and estate (Belmead) of Gen. Cocke's son, and on either side of the river stood spacious and handsome homes ("Bolling Hall," "Sabot Hill," and others), where old Virginia hospitality was practiced to its fullest extent. As we neared Richmond, the low grounds grew wider and the country flatter, the scenery becoming less bold and fine than on the upper course of the canal between Lynchburg and Buchanan, or between Balcony Falls and Lexington.

The fare on the packet boat was very fine in ante-bellum days, equalling that of a good hotel. The best that the Richmond market afforded was to be seen on the packet boat table—fish, oysters, turkey and other delicacies, always winding up with a plentiful supply of almonds and raisins, which delighted my childish taste. They bought butter and eggs from the country people along their line. How they managed to cook so much and to cook so well in the tiny kitchen of the packet boat is, to this day, a mystery to me.

At night, the cabin was partitioned into two divisions, by a heavy baize curtain, one for the female passengers and the other for the male, and then the berths were hung in rows of three against the wall. We were somewhat closely packed, and were sometimes aroused by rough jolting in passing through the locks, but nevertheless were surprisingly comfortable in our narrow berths.

During our civil war, travel increased so much that two lines of packet boats were put on the canal, and even then they were so thronged that they sometimes looked as if they were in danger of sinking.

I have given above the pleasant side of packet boat travel, but in this case, as in every other, there are two sides to the question. The great drawback to this form of travel was that freezing weather brought it to a halt, and sometimes the boat lay imbedded in ice for several days, or even a week. In this case, the mail

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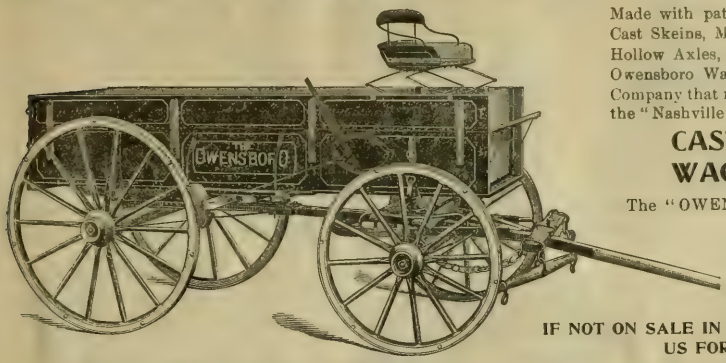
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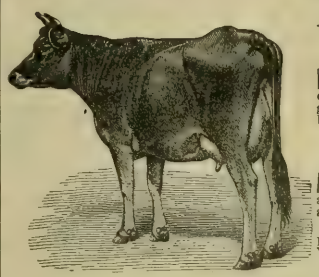
was sent forward on horseback, and the passengers had either to remain on board or to have private vehicles to carry them to their destination, if practicable. The most determined old fogy must admit that in this respect the railroad has the advantage over canal travel. Besides the enforced stoppage by ice, the boats were stopped every July for about a week by the drainage of the canal for purposes of repair.

Occasionally, also, high water would play the mischief with the canal, and necessitate quite a long cessation of travel till repairs could be made. After the war, this evil increased greatly. We became subject to great floods, the first one occurring in September, 1870, and these tore the canal so terribly to pieces that they helped to pave the way for its abolition, and the substitution of a railroad in its place.

Another drawback to the canal was that it produced a great deal of sickness, both at its foundation and its abolition; on the former occasion, by the great embankments of fresh earth that were thrown up where its channel was dug, and on the latter, by many stretches of stagnant water being left along its course where the railroad was first built A great deal of ague and fever resulted from the above causes, but since the old canal has been thoroughly drained, malaria has (so far as I know) disappeared from along its line.

About the time that our packet boats were at their zenith (probably about 1856), the gifted "Porte Crayon," whose real name, I believe, was Sydney Strother, wrote a charmingly illustrated article which was published in *Harper's Monthly*, describing a trip he had made on the James River and Kanawha Canal If any of my readers should be so fortunate as to come across this article, it will give them a far more vivid idea than I can impart of the old packet boat days.

"Catch the opportunity." By taking Hood's Sarsaparilla now you may build up your health and prevent serious illness.



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Some choice young COWS and HEIFERS, sired by the great St Lambert bull,

ETHEL'S JOHN BULL No. 29005 whose dam, Ethel of Shelburne, granddam Crocus of St. Lambert, and her full sister, the great Mary Anne of St. Lambert, have an average butter record of 22 lbs. and 7 ounces in 7 days.

Also some extra fine BULL CALVES out of high testing daughters of the above bull, and sired by our grand young bull,

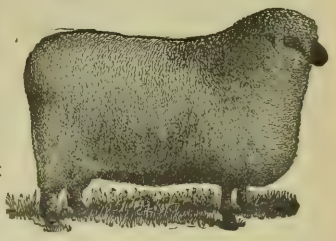
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If you want a good home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

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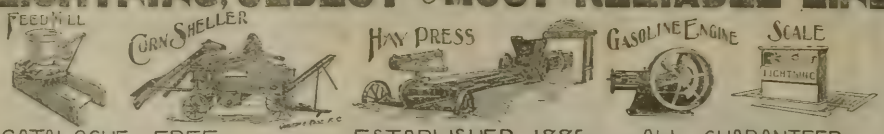
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THE GREATEST QUEEN IN THE WORLD.

MARIE CORELLI'S TRIBUTE TO THE WORK AND CHARACTER OF QUEEN VICTORIA.

Queen Victoria was born May 24, 1819. Her birthday this month gives timeliness to a tribute from her favorite novelist, Marie Corelli, in this week's Saturday Evening Post. She writes:

"The Englishman is ever quick to sneer at woman's advancement in art, in literature, in scholarship and general intellectual ability; yet all the while 'tis a woman who rules him, and to a woman alone he is compelled to bend the knee! Off goes his hat at sight of the Queen! cheers break from his throat at the proclaimed words, 'the Queen!' 'knights and earls, and knaves and churls' bow their heads to 'the Queen!' And with all peoples and in all countries there seems to be only one Queen to whom the article 'the' can be applied without further modification. Other Queens are qualified in their estate by the land over which they rule—as, for example, Queen of Italy, Queen of Greece, Empress of Germany, Empress of Russia—but when 'the Queen' is said, every one means England's Victoria. Of all queens the greatest, she is of all women the simplest, and herein gives matchless example to her sex. Above the splendors of her position and enthronement, she is pre-eminently woman in the sweetest and most womanly sense of the word—one who is gifted with quick, fine sympathies, and who has the supreme and exquisite tact which is, or should be, inherent in every true and unselfish feminine nature, combined with perfect self-command, flawless purity, and a strong, personal potency for good. Throned and crowned and sceptered in the fierce light of the whole world's constant observation, she yet remains as unaffected and sincere of soul as the most unsophisticated of her subjects, and is in very truth one with them in the ordinary round of their daily existence.

"Are we bereaved of our best-beloved? So is the Queen. Have we suffered from evil-speaking and misjudgment? So has the Queen. And in our joys is she not equally one with us there?

"In all quiet, natural and innocent pleasures the Queen is one with her subjects; it is only in social vice and folly that she takes no part."

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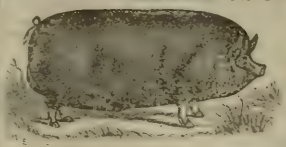
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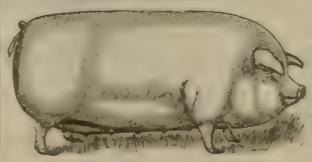


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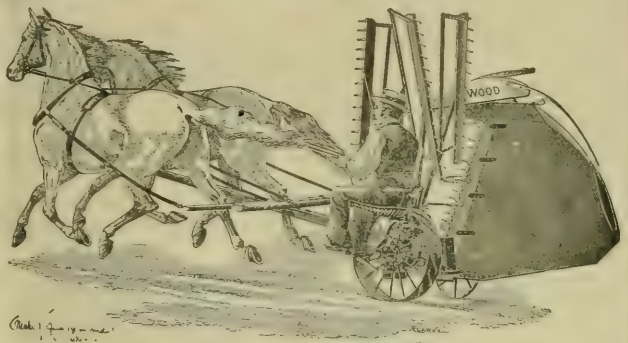
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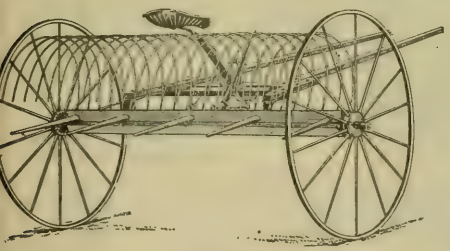
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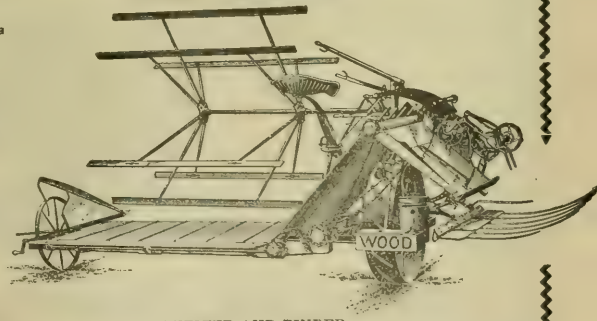
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COMPANIONSHIP FOR CHILDREN.

MARY W. EARLY, Lynchburg, Va.

No matter how kind, affectionate and sympathetic young parents may be to their children, they cannot entirely fill the needs of the latter. A child's happiness is not complete, nor can its nature be thoroughly and harmoniously developed without the companionship of other children. No matter how hard we grown people may strive to do so, we cannot simulate the "young joy" of children, their artless innocence, their light-hearted gayety, their charming playfulness; therefore, though we may be "guide, philosopher and friend" to them, and even make ourselves to some extent their companions, still they need playmates of their own age, and with all our wisdom and experience, we cannot take the place of these. It is not merely for their enjoyment that children require contact with those of their own age. It is still more needed for the full expansion of a child's feelings and character. It gives play to a different set of feelings and traits from those produced by contact with parents. In the latter case, reverence and obedience are supposed to be the distinctive traits called out, and surely there could not be a better foundation for character, as these traits exercised in tender years towards earthly parents pave the way for the child to exercise them later towards his Heavenly Father. But with young companions of his own age, where all are on an equality, the child learns to give and take, and acquires his first lesson in the great art of co-operation, which is the secret of all social organization. He learns that his own will and pleasure are not paramount, but that he must take his turn in giving up these, if he would get on smoothly with his companions. Most children have the companionship of brothers and sisters at home, which not only adds greatly to their happiness, but gives scope for the development of their affections and for their learning to be helpful and unselfish.

But here I will take occasion to speak of a fallacy very commonly entertained, viz: that the mere fact of children being brothers and sisters will endow them with a warm and strong affection for each other. This is far from being universally the case. There are great diversities about this in different families, natural affection being much stronger with some than with others; but my observation leads me to think that, as a general theory, natural affection between brothers and sisters needs cultivation, and is not of itself sufficiently vigorous to develop into a strong and beautiful growth without fostering. It is just as susceptible of increase and improvement as any fruit or flower which has been developed by careful culture into a degree of size, fineness and beauty unknown to it in its primitive state.

Parents can conduce immensely to the harmony and affection existing between their children by training them into this spirit from their infancy, teaching them to be gentle, helpful and unselfish to each other, and to share every pleasure and every dainty with each other. I think

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Any 10-year-old child can operate it. Does the work of a $100 Separator. After we get a limited number sold, then the price will be regular, which will be double. Take advantage of this grand offer. Money must accompany order. Price for 10-gallon size, $5; 15-gallon, $3.50; and 20-gallon, $4. Registered letter or postoffice money-order. Write for circulars.



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we should make it a predominant idea with our children that there must be a community of good amongst them, and that there is no real enjoyment in any pleasure unless it be diffused and shared with others. Not only does it enhance greatly the sweetness and happiness of childhood, and assist in the upbuilding of character, for brothers and sisters to love and treat each other kindly, but in later years, amid the burdens and cares of advancing life, it will be an inexpressible solace to turn with faithful love and unswerving loyalty to those who shared and formed a part of their earliest memories. No other tie can take the place of this, for to whom else can we so well turn and say: "Don't you remember?"

But important as is the companionship of brothers and sisters for each other, still they do not always fill each others' needs entirely. There is generally too much similarity amongst them, at least in early childhood, and therefore it is well to add to their circle, occasionally at least, some outside companions with diversified ideas, tastes and pursuits. This gives greater fullness and liveliness to a child's nature and experiences, and enlarges the scope of its affections and thoughts.

A STRONG FENCE.

The Coiled Spring Fence Co., Winchester, Ind., get out a very attractive catalogue, for which the readers of the *Southern Planter* are invited to send. Their claim for the "strongest fence made" is supported by the fact that they use a twisted cable instead of a single wire for their laterals or long strands. They claim this feature alone has more than ordinary advantage. However, get their catalogue before buying fence.

MARK TWAIN'S LATEST.

Mark Twain has been living quietly in England for some time now, and were it not that he appeared to give evidence before a royal commission on the question of copyright, scarcely a soul outside his private and particular friends would have known he was there at all. The other evening he was dining at the house of a friend, and seated next to him was an American who had only that day reached England. They were, of course, talking war, and the newcomer, wishing to know the feeling in England in the matter of the future of the Transvaal, asked Mark Twain how he found public sentiment in England regarding the independence of the republics.

"Well," said the genial humorist, "I find the English are paraphrasing a part of the burial service. They are all quietly repeating, 'Mr. Gladstone giveth and the Lord Salisbury hath taken away. Blessed be the name of the Lord.'"—*From the Saturday Evening Post.*

GINSENG.

The American Ginseng Gardens, Rose Hill, N. Y., issue an attractive booklet on ginseng, its culture, etc., and are sending it free to all who request it. They claim that big money can be made from this plant, and invite all who are interested to correspond with them.

FERTILIZERS—FROM FACTORY TO FARM

WE SELL YOU DIRECT. NO AGENT'S PROFITS. NO SALESMAN'S EXPENSES.

VALUABLE PREMIUMS GIVEN FREE.

For premium list, prices, samples and book, write

THE SCIENTIFIC FERTILIZER COMPANY, HERR'S ISLAND, PITTSBURG, PA.

A Small Thresher

The Farmer's Friend.

Has great capacity—runs easy with light power.



The Columbia will thresh all grains with less help, at less expense. Full line of Sweep and Tread Powers. Illustrated catalogue and testimonials free.



BELLE CITY Feed and Ensilage Cutters.

All sizes—hand and power. Illustrated Catalogue and latest book on Ensilage mailed free.

BELLE CITY MFG. CO., Racine, Wis. Box 73.

"As Good as Wheat in the Mill."

It Never Chokes Up!



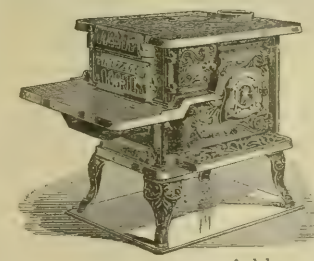
IT NEVER GATHERS TRASH. IT WORKS WELL IN ANY SOIL. WE OFFER THE

KENTUCKY DISK DRILL

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BRENNAN & CO., S. W. Agricultural Works (Inc.) Department A-8, LOUISVILLE, KENTUCKY.

Why Pay Enormous Prices



for your Cooking Stove or Range, when you can buy direct from the Factory and save one third of the cost?

Write for Catalogue and full particulars.

Manufacturers of the celebrated FITZ LEE COOKING STOVES

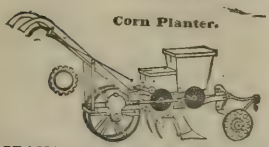
Address

SOUTHERN STOVE WORKS,

815 to 827 North Seventeenth Street,

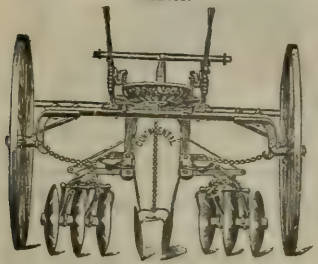
RICHMOND, VA.

LABOR-SAVING IMPLEMENTS AND MACHINERY



Corn Planter.

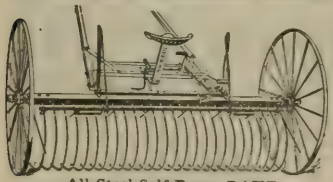
SPANGLER Corn and Fertilizer Planter.



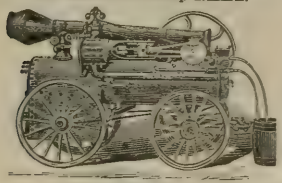
The CONTINENTAL Disc Cultivator and Combined Disc Harrow.



MOWER with Ball and Roller Bearings.



All-Steel Self-Dump RAKE.



PEERLESS Engine.

CORN PLANTERS.

The SPANGLER for Corn in hills or drilled, Peas, Sorghum and Fertilizer. KEYSTONE with or without Fertilizer Attachment.

WEEDERS.

Teeth adjustable to different heights; works two rows at once.

HARROWS.

DISC with Roller Bearings; Lever, All-Steel. Straight or Slanting Tooth. FERTILIZER DISTRIBUTER—for all crops.

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DISC Cultivator and Harrow; ALL-STEEL Three and Four-Tooth; PLANET Jr. and Iron Age Cultivator and Horse Hoes

The Celebrated DEERING HARVESTING MACHINERY.

Mowers, Binders and Corn Harvesters, with Ball and Roller Bearings The lightest draft machines in use. Simple, strong, and on most liberal terms and prices.

HAY RAKES.

Hand and Self-Dump.

CIDER MILLS.

With Wood Crushing Rollers.

FEED and ENSILAGE CUTTERS.

All Sizes for Hand or Power, with or without Stalk Crusher.

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Of all kinds.

BALING PRESSES

For Hand or Power.

PEERLESS Engines and GEISER Threshers and Saw Mills.

A large variety of machines and repairs carried in stock.

WOOD and POLE SAWS

For Horse or Steam Power.

CORN and FEED MILLS.

All Sizes.

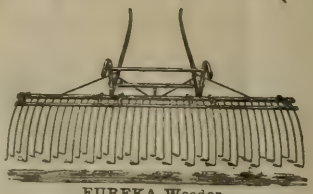
The Original Disc Plow—THE HANCOCK.

For two or three horses. 50 per cent. less draft than any other. Guaranteed to give satisfaction.

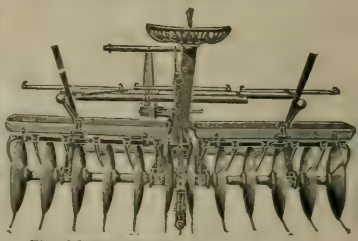
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Farm, Freight, Log. Thimble Skein or Steel Axle. All sizes from one horse to six.



EUREKA Weeder.



The CONTINENTAL Disc Harrow.



BINDER with Roller and Ball Bearing.



CORN HARVESTER.



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BUGGIES, SURREYS, ROAD CARTS, FARMERS' CARRYALLS, ROAD WAGONS.
HARNESS OF EVERY DESCRIPTION.

Write for Catalogue.

THE WATT PLOW CO., Franklin and 15th Sts. ,RICHMOND, VA.

IMPLEMENTS, MACHINERY AND VEHICLES OF EVERY DESCRIPTION.

OUR FIRST INTERNATIONAL MARRIAGE.

Some people are given to thinking that the Englishman's predilection for the American girl is a recently developed passion. Such is by no means the case. If American visitors should care to see a portrait in oils of one of the very first American girls to catch an Englishman of position, let them journey to Boonton Hall, in the county of Norfolk, the hall that was in former days the seat of the Rolfe family. In this hall hangs a portrait by De Passe of a handsome young woman, with high cheekbones, and complexion splendidly swarthy. Around this portrait are the words *Matoaka Rebecka, filia potentis Prince Powhatani imp. Virginiae*, and on a space below the portrait are these words, "Matoaka, alias Rebecka, daughter of the mighty Prince Powhatani, Emperor of Attanough Komouck of Virginia; a Christian convert, and married to the Worshipfull Mr. Thomas Rolff. Aged 21. 1616." This portrait of the far-famed Princess Pocahontas was painted but a few weeks before she died on board a ship about to sail for America. She was buried in the parish church of Gravesend, at the mouth of the river Thames, and to this day the curious can see the following entry in the parish register: "1616. March 21. Rebecca Wrolfe, wife of Thomas Wrolfe, gent. a Virginia lady born, was buried here in the chauncell." Unfortunately, the original edifice was burnt down a century ago, otherwise Americans could now look upon the tomb of the first American girl who took an English husband.—*From the Saturday Evening Post.*

Will fortune never come with both hands full,
But write her fair words still in foulest letters?
She either gives a stomach, and no food,
Such are the poor, in health; or else a feast,
And takes away the stomach, such are the rich,
That have abundance and enjoy it not.
—SHAKSPERE.

NO DISCRIMINATION.

An aged Georgia negro, Nathan by name, is employed by a gentleman very prominent in State politics. That Nathan, also, has an eye to political favors is shown by the following conversation, which recently took place between him and his employer:

"Marse Jim," said Nathan, "is you gwine in dis yere race fer governor?"

"Haven't thought about it."

"Well, ef yer does run, an' gits elected, will you give me a job?"

"Certainly I would remember you, Nathan. What would you like?"

"Well, suh, I'd des like to black boots roun' de Capitol."

"And what would you expect for that service?"

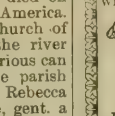
"Well, suh," he replied, "I should say four dollars a day would be reasonable. Dat's what de yuther legislators get."—*Youth's Companion.*

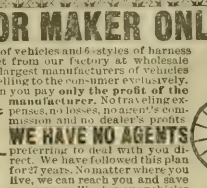
Beggars should be no choosers.—J. Heywood.

SLUG SHOT KILLS INSECTS in the Garden, Etc. In use since 1880. Is effective and safe to use. **Sold by Seedsmen Everywhere.** Send for Free Booklet on Bugs and Blights to
B. HAMMOND, Fishkill-on-Hudson, N.Y.

WE SAVE YOU MONEY ON FERTILIZERS.
Buy your fertilizers Direct at Wholesale Prices, and get your money's worth.
SPECIAL OFFER TO CLUB PROMOTERS.
WRITE FOR PRICES, SAMPLES AND PAMPHLET.
WALKER, STRATMAN & COMPANY, Pittsburgh, Pa.

PROFIT FOR MAKER ONLY
We manufacture 178 styles of vehicles and 6 styles of harness and sell them to you direct from our factory at wholesale prices. In fact, we are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively. When you buy on this plan you pay **only the profit of the manufacturer.** No traveling expenses, no losses, no agent's commission and no dealer's profits
WE HAVE NO AGENTS
preferring to deal with you direct. We have followed this plan for 27 years. No matter where you live, we can reach you and save you money. We ship our vehicles and harness anywhere for examination and guarantee safe arrival. We manufacture **everything we sell,** and we can assure you of good quality from beginning to end: good wood work, good iron and steel, good paint and varnish, good finish, good trimmings, fine style and the largest selection in the land. Large illustrated catalogue FREE. ELKHART CARRIAGE & HARNESS MANUFACTURING CO., Elkhart, Ind.


No. 180—Double Buggy harness, with nickel trimmings. Complete with collars and hame straps, $22. Good assortment at $30.


No. 717—Canopy-Top Surrey, with double fenders. Price, complete, with curtains all around, storm apron, sunshade, lamps and pole or shafts, $75; just as good as sells for $40 more.

Elmwood Nurseries.
We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.
APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,
QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.
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BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.
WRITE FOR DESCRIPTIVE CATALOGUE.
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OF RICHMOND, VA.
Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.
Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.
Capital Stock, $200,000
Surplus and Profits, $330,000
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DIRECTORS.—John P. Branch, B. B. Munford, Chas. S. Stringfellow, Thos. B. Scott, B. W Branch, Fred. W. Scott, Jas. H. Dooley, Jno. K. Branch, A. S. Buford, R. C. Morton, Andrew Pizzini, Jr., J. P. George.

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA.

NOTICE OF FIFTEENTH ANNUAL MEETING.

In accordance with Section 2 of the Charter and Article II, Section 13, of the By-Laws, you are hereby notified that the Fifteenth Annual meeting of the Holstein Friesian Association of America will be held at the Iroquois Hotel, Buffalo, New York, on Wednesday, June 6, 1900, at 10 o'clock A. M., for the election of officers and the transaction of any other business which may legally come before it.

F. L. HOUGHTON,
Secretary.

A CONTRAST IN CIVILIZATION.

There are Indians in our Western country who, though surrounded by civilization, still wear the blankets and feathers to which they were long ago accustomed, and hold in utter contempt all observance of present-day customs; but while they wander about, still sullenly proud of their blankets and feathers, and lead lives of vagabondage, younger men are making railroads through their lands and building houses which they might have built and occupied.—*Grover Cleveland, in the Saturday Evening Post.*

BAILEY'S HYDRAULIC RAM.

Mr. Pryce W. Bailey Expert, Seneca Falls, N. Y., is advertising his splendid Hydraulic Ram. Send for prices and catalogues.

WHY DAVID B. HILL WEARS A SILK HAT.

There are probably no two men in Albany so nearly alike and so much unlike as ex-Governor David B. Hill and Governor Theodore Roosevelt. Both men are fighters, although their methods differ. Both are brave and eloquent, and each received his office from a political party with which he in many respects differed. The two Governors often meet, and there is usually a little quiet fun between them when they come together. Both men have the gift of saying sharp things. Not long ago the New York State newspaper men gave a banquet at Stanwix Hall, in Albany, and among the guests of honor were the two Governors. Colonel Roosevelt came first. He wore an evening suit and his famous brown sombrero made famous by the Rough Riders. It was a combination costume at once original and picturesque. Among the last of the guests to arrive was Mr. Hill, who was conventionally attired, even to his silk hat.

"Ah!" exclaimed Colonel Roosevelt in his peculiar staccato manner, as he grasped Mr. Hill's hand, "now we have with us a real Albany swell. Governor Hill is the only man here to-night with a silk hat."

"I've got a slouch hat myself," returned Mr. Hill softly, "but I left it at home. I've given up wearing it since I went out of the advertising business."

Then dinner was announced, and the remainder of the evening passed pleasantly.—*From the Saturday Evening Post.*



..THE..

IMPLEMENT COMPANY,

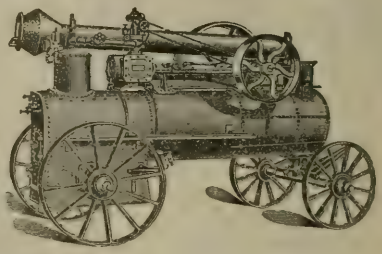
1302-1304 E. Main St.,
RICHMOND, VA.

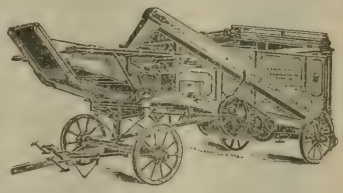
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We have the most satisfactory

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in the country. Particulars on application.





If you want a reliable, stylish

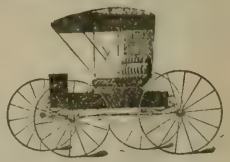
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Wagons, both for farm and lumber.



All kinds of **Agricultural Implements.**



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The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever journal you wish.

	PRICE ALONE	WITH PLANTER
DAILIES.		
The Dispatch, Richmond, Va.	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harpers' Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeders' Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, " "	2 60	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harpers' "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 25
Cosmopolitan "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan, "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish *no sample copies* of other periodicals.

Seed House of the South.

RED CLOVER,
MAMMOTH CLOVER,
CRIMSON CLOVER,
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LUCERNE CLOVER,
ALSYKE CLOVER,
BOKHARA CLOVER,
JAPAN CLOVER,
BUR CLOVER,



TIMOTHY
ORCHARD GRASS,
RED TOP or HERDS GRASS
KENTUCKY BLUE GRASS
RANDALL GRASS,
TALL MEADOW OAT GRASS
JOHNSON GRASS,
GERMAN MILLET,
BUCKWHEAT,
OATS and
CANE SEED.

"Whatsoever Soweth, That Shall He Reap."

We sell strictly reliable FIELD AND GARDEN SEEDS of every variety at Lowest Market Rates, included in which are RAGLAND'S PEDIGREE TOBACCO SEEDS.

WE ALSO SELL

Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

Wm. A. Miller & Son, 1016 Main Street LYNCHBURG, VA.



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APPLE, PEACH, PEAR, PLUM, &c

Grape Vines, Ornamental Trees, Shrubs, Roses, &c.

ALL THE DESIRABLE STANDARD AND NEW VARIETIES.

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The Most Reliable Variety Ever Grown in the South.

Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogues free.

AGENTS WANTED. WRITE FOR TERMS.

W. T. HOOD & CO.

OLD DOMINION NURSERY. RICHMOND, VA.

THE B. F. JOHNSON PUBLISHING COMPANY.

We invite attention to the advertisement of the above company, on last cover page. This concern has recently very largely increased its capital stock and facilities, in order to supply the demand for their well and favorably known school books. The press is very complimentary to the management and enterprise of the company, as will be seen by the appended notices:

"Another great Richmond enterprise has been compelled to enlarge its capital in order to meet the demands of a rapidly-growing business. This, it is understood, is the meaning of the reorganization of the B. F. Johnson Publishing Company, which has recently developed an extensive school-book trade in addition to its regular subscription-book business."—*Richmond (Va.) Times.*

"It is understood that the plans for the development of the Company's business are in no sense of an experimental character, the chief object being to provide for its rapidly-increasing school-book trade, the growth of which is perhaps one of the greatest marvels of recent Southern progress."—*Richmond (Va.) Dispatch.*

Beauty is but skin deep.—Old Proverb.

An artful woman makes a modern saint.—Prior.

Good manners never can intrude.—E. Moore.

Art is a perfection of nature. Sir T. Browne.

Alms are but the vehicles of prayer.—Dryden.

Life is too short for mean anxieties.—C. Kingsley.

Angels from friendship gather half their joys.—Young.

Fashion wears out more apparel than the man.—Shakspere.

Ambition makes more trusty slaves than need.—Ben Jonson.

General notions are generally wrong.—Lady M. Montagu.

An injury is much sooner forgotten than an insult.—Lord Chesterfield.

Animals are such agreeable friends—they ask no questions, they pass no criticisms.—George Eliot.

Good nature will always supply the absence of beauty, but beauty cannot long supply the absence of good nature.—Addison.

FRAZER AXLE GREASE.

The old reliable Frazer Axle Grease is advertised in another column. It is for sale by all dealers.

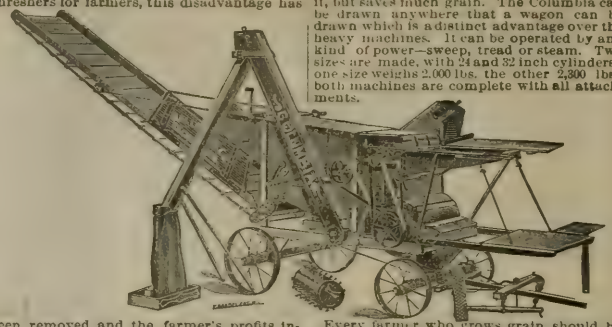
If fate has denied to any woman a home, a husband and a baby, let her take up art, or medicine, or blacksmithing, as she chooses, and try sincerely to make the best out of her life she can. But to claim that these are nobler occupations than her own craft, the high calling of wifehood and motherhood, is the most shallow and dangerous of cant.—*Ladies' Home Journal.*

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

MORE PROFIT FOR GRAIN GROWERS

A Small Threshing Outfit for Farmers.

Having to depend on the threshers has been one of the most serious disadvantages of grain growing. With the advent of the small threshers for farmers, this disadvantage has been removed and the farmer's profits increased. Those who are so fortunate as to have a Columbia Thresher, may have their grain threshed whenever it is most convenient and save much expense at the same time. The Columbia, while requiring only from six to eight horse power, does exactly as good work as the larger threshers and has a greater capacity than one would think possible.



Not only does it require less help to operate it, but saves much grain. The Columbia can be drawn anywhere that a wagon can be drawn which is a distinct advantage over the heavy machines. It can be operated by any kind of power—sweep, tread or steam. Two sizes are made, with 24 and 32 inch cylinders; one size weighs 2,000 lbs. the other 2,300 lbs.; both machines are complete with all attachments.

Every farmer who grows grain should be deeply interested in this small thresher. An illustrated catalogue will be mailed by the manufacturers, The Belle City Manufacturing Co., Racine, Wis., to anyone who writes for it.

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

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THE BIG FOUR SYSTEM, from Chicago, St. Louis, Peoria, Indianapolis Sandusky and Cleveland;

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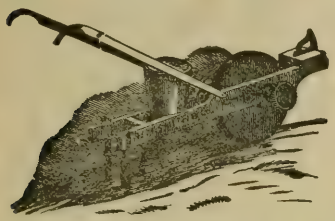
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A YOUNG MAN OF ACTION.

[From The Saturday Evening Post.]

James A. LeRoy, secretary to Dean C. Worcester, of the Philippine Commission, has a faculty for meeting all sorts of emergencies in apparently impossible ways.

In '96, when he was captain of the University of Michigan track team, he sprained his ankle and had to break training. He went with his team to Chicago to attend the Western intercollegiate meet, but did not expect to contest and did not even take his track suit. But a man whom he had counted on to win the broad jump got sick. LeRoy saw defeat staring his team in the face. He was entered for the games and had the right to take part. He borrowed a suit and pair of spiked shoes. He walked to the track with a look of determination on his face that made his supporters prophesy success in spite of his bad ankle and lack of training. When his turn came he tore down the field in a way that made the Michigan men hold their breath. He rose at the take-off and landed just twenty two feet and seven inches away, breaking the Western record and defeating his nearest competitor by more than one foot.

When Commissioner Worcester offered LeRoy his secretaryship the athlete was in Detroit writing politics for *The Evening News*. He wired his acceptance and then wrote another telegram. It read:

"Can I take my wife?"

"You have my blessing," wired the commissioner, who knew LeRoy was not married, "but I will have to get you permission from Washington."

Then LeRoy wrote another telegram It was to Miss Mabel Pound, of Pontiac. Miss Pound had been in the university when LeRoy was a student there. This telegram read:

"Will you marry me and start at once for the Philippines?"

The answer to this dispatch has not been made public. However permission came from Washington for LeRoy to take his wife to Manila. There was no time to be lost. LeRoy had to leave for San Francisco on Friday. Superstitions were laid aside and he was married to Miss Pound on that day. Now he and Mrs. LeRoy are on the transport bound for the Philippines.

GROVER CLEVELAND'S ADVICE.

HIS INTERESTING ANSWER TO THE QUESTION, DOES A COLLEGE EDUCATION PAY?

Ex-President Grover Cleveland contributes to *The Saturday Evening Post* the first magazine article he has written since he left the White House. It is a vigorous and remarkably forceful discussion of the question, Does a College Education Pay? and it is of interest not only to the thousands of young men who are considering the problem, but to the tens of thousands of parents who may have doubts. Mr. Cleveland does not judge success simply by money-making.

"Many a college bred man labors in the field of usefulness without either wealth or honors, and frequently with but scant recognition of any kind, and yet achieves successes which, unseen and unknown by the sordid and cynical, will bloom in the hearts and minds of men longer than the prizes of wealth or honors can endure," he says.

Further on in the article is this: Parents should never send their sons to college simply for the purpose of educational ornamentation. The fact that parents have the fate of a son largely in their keeping should not only enlist their parental love and pride, but should, at the same time, stimulate their parental judgment. Furthermore, they should be constantly mindful that they have in charge not only a son, but an uncompleted man who is soon to become their contribution to the manhood of the world. They therefore owe a dual duty, which demands on the one hand that the education of the son be undertaken as a help to his success in life, and on the other, that this education shall promise for the maturing man the equipment necessary to insure his value as an addition to civilized humanity. Before he leaves home to enter upon his student life, his sympathy with these purposes should be fully aroused, and he should be impressed with the importance of keeping them steadily in view. He should also take with him to his new surroundings a love of truth and honor, a cheerful, manly disposition and truly democratic inclinations. With these, his collegiate advent must be auspicious, and his future life well guarded against failure. Lacking these, his way is made immensely more difficult and uncertain."

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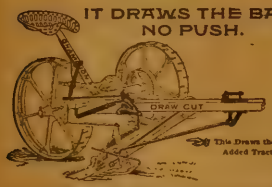


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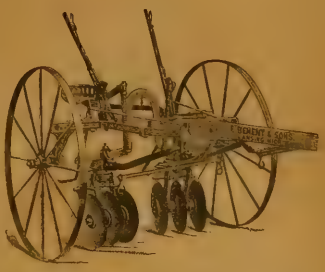
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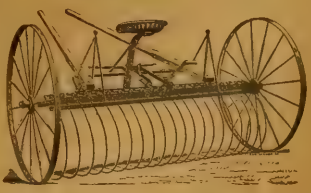
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J. F. JACKSON, Editor and General Manager.

Vol. 61. JULY, 1900. No. 7.

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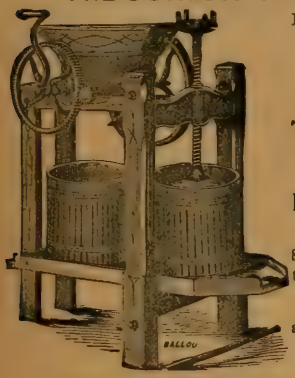
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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, July, 1900. No. 7.

Farm Management.

WORK FOR THE MONTH.

We have now come to that period of the year when some fair indication of the probable results of the labor expended in the planting of crops may be formed and steps be taken to make good deficiencies in such crops as do not promise to be satisfactory. Taking first the wheat crop. The indications now are that the crop both of winter and spring wheat is not likely to be a large one, indeed little, if any, in excess of that produced a year ago. This condition of affairs has been brought about by the immense destruction by winter killing and the fly of the winter wheat crop in the States of Michigan, Indiana, Illinois and Ohio, and by the damage done to the spring wheat crop in the Dakotas and Minnesota by the drouth. So serious has been this combined destruction that the price of wheat has already advanced in the market to a higher point than at any time since the great Leiter boom. In Chicago the price is now 84 cents per bushel, in Baltimore and Richmond 80 to 85 cents, with every indication of a further advance. The crop in the Southern States is a larger one than usual, and the condition generally is good, though undoubtedly some damage has been done by the recent rains, but not we believe to a serious extent. The prospect, therefore, for the southern wheat growers is decidedly a good one—a good yield with a good price.

The oat crop in the South is not promising, the winter oats having been largely killed, whilst the spring sown ones have suffered from the drouth and cold weather. A failure in this crop affects our farmers more from the point of view of its value as a forage than as a grain crop, and there is time to make good the deficiency in the forage yield.

The corn crop is very uneven, and at this writing not nearly so promising as we would wish to see. The cold dry weather caused the stand to be poor, and necessitated much replanting. The warm rains we have recently had have improved prospects somewhat, but there is yet much leeway to make good. In a journey over a considerable section of this State made about the middle of June we failed to see more than a very small number of really good fields of corn. From one or two sections we have reports of good crops on the low-ground, one gentleman writing us that he has a large area of excellent corn as tall as a mule, but these are the exeeptions, and are to be found only on farms in a high state of cultivation, and under excellent management.

The hay crop so far as saved has been a very light one, but we anticipate much better results from the sections where the crop is still to cut, and also where second crops are being grown. The recent rains and the warm weather are helping much in this direction.

The tobacco crop is now nearly all set out, and most of it has been got in on good seasons, and is starting to grow well. The indications are that there will be a material reduction in the area planted, especially in the bright belt, some large growers estimating this reduction as high as 25 per cent. In the dark belt we

do not think there will be anything like so large a reduction in area as this, but there will certainly be no increase.

The cotton area is very largely increased; possibly this increase may amount to as much as 20 per cent. The condition of the crop is, however, not so promising as could be wished in many sections. The cold, dry weather has prevented growth.

The reports in this issue give a fair indication of the fruit crop prospects in this State. In other fruit States the indications are for great yields, especially of peaches.

The truck crops are yielding well, especially Irish potatoes and cabbage, and prices are better than for several years. The general prosperity of the working classes is having its effect on the markets for these crops. They are buying freely, and hence prices keep firm.

The live stock markets keep firm, and the demand for beef, mutton and pork is good. The only difficulty which the producers of these staples experience is that they cannot replace the fat stock with lean feeders at anything short of prices nearly equivalent to those for which the fat stock are selling. There is a decided scarcity of lean stock of all kinds, and we are satisfied that many of our farmers would do well to give more attention to this branch of farming. We have thousands of acres of land upon which young stock could be grown, and grown at a profit, if only a better quality of stock was introduced, and for these a good market could be found right at home.

Reviewing the position, it would seem to us that the present work of farmers is to endeavor to make good the deficiency in the hay crop and the probable deficiency in the fodder crop by a liberal planting of forage crops of all kinds. Millet, cow-peas, sorghum and fodder corn may yet be planted with every assurance of good crops being made. German millet makes an excellent crop when seeded on good land, but is not a crop to sow on poor land. It makes excellent hay, if cut when in bloom, and should never be allowed to stand until the seed forms. It may be fed safely to all kinds of stock when clear of seed, but if the seed has been permitted to form and become hard, it is not safe to feed continuously to horses. The seed should be sown on finely prepared land at the rate of one bushel to the acre, and should be lightly harrowed in and rolled.

Cow-peas, seeded alone or with sorghum, or with a small growing variety of corn, should continue to be sown up to the close of the month. There is no better hay produced than cow-pea, or cow-pea and sorghum hay, for growing stock. Corn for the silo and for fodder may be planted up to the middle of the month. Do not seed too thickly. Whether for the silo or for fodder, the corn should be planted so that it can have the full influence of the sun and air around and upon it, so as to fairly mature it. Thickly planted corn makes watery innutritive feed, whether in the shape of silage or fodder.

If you have no silo, it is time to make preparation and build one, if intended to be used this year. A silo is the most useful building on a stock farm, and no stock farm is complete without one. It is the most economical barn a man can build. We have repeatedly published directions for building a silo, and would advise any one contemplating the erection of one to send for Bulletin No. 83, recently issued by the Wisconsin Experiment Station, which contains the most recent information on the subject. The great point to be aimed at is to build so that the structure is air-tight, or as nearly so as possible, and that the depth shall be not less than 20 feet, but as much more as practicable. There are four important reasons in the storing of silage for making the silo as deep as practicable: (1) The largest amount of feed per cubic foot can be stored in this way; (2) There is less loss at the surface during slow feeding, and because the silage packs more closely, there is less danger of the entry of air; (3) The spoiled silage at the top is less in proportion to the whole silage stored; (4) The stronger lateral pressure forces the silage so closely against the walls that, if they are at all open, it tends to exclude the air and the silage keeps better. The best form of silo is a round one, and this may be either built up of staves like a tank, or be framed like a building. Two of the best silos we have seen for a long time are the two recently built at the Experiment Station, Blacksburg, Va. They are round and built to hold from 200 to 250 tons each, and are framed. The lining is made of two thicknesses of matched plouged and grooved ½-inch flooring with tarred paper between the two, and they are sided outside with weatherboarding. Such silos as these will last as long as most other farm buildings. The least costly form of silo is a tank silo, made of boards, neither bevelled nor plouged and grooved, and held together with iron bands. The difficulty with this form of silo is that the boards shrink in the hot weather when the silo is empty, and unless carefully watched they then soon fall to pieces; and they are apt to burst the bands when filled again if these have been made tight before filling. In the South, however, such a silo will effectually preserve the silage, and that at very little cost.

When the harvesting of the wheat and oat crops is completed and the fields cleared of the crops, we

would urge that German or crimson clover, or a mixture of Dwarf Essex rape and crimson clover, be seeded on the stubble, where the same is not already seeded in clover or grass. This can be done at little cost of either labor or money. The land should be run over with a disc or spading harrow, and the seed be sown broadcast at the rate of 8 or 10 lbs. of German clover and 3 or 4 lbs. of rape to the acre. This will make good fall grazing and a cover for the land during the winter or until plowed, and will help the land and the stock on the farm much more than the crop of weeds usually allowed to grow up on such lands.

See that weeds that grow up on the stubbles are kept down by running the mower over them at intervals during the summer and fall. Many a good stand of clover and grass is ruined every year by neglect of this practice. The weeds grow up and abstract from the ground the moisture and fertility which should go to perfecting the growth of the grass and clover. Set the mower high, and leave the cut weeds to act as a mulch on the ground.

In the southern part of this State, and in the States further South, the second crop of Irish potatoes should be planted this month. See that the sets are sprouted before being planted, and plant only those that are sprouted. Plant in a deep trench made by running the plow twice in each furrow and cover the sets thinly with soil, pressed to them by a roller or with the foot. As the plants grow, work the soil back into the trench until the land is again level, and keep level during subsequent working and growth.

Prepare the land for sowing ruta bagas, turnips and rape. The land should be in good heart and finely prepared. If not rich, apply a heavy dressing of farm yard manure and 400 or 500 lbs. of acid phosphate to the acre, broadcast. All these crops make the best yield sown in drills and cultivated three or four times during growth, but if time cannot be found to cultivate, then sow broadcast. Four or five lbs. of seed to the acre will be required for broadcast sowing, whilst half that quantity is sufficient if sown in drill. Every stock keeper should endeavor to have ruta bagas and turnips to feed during the winter, and especially so if keeping sheep. There is no food which so helps stock to do well in winter as roots. Whilst their nutritive value is not high, they have a cooling and appetizing value which makes their use always profitable. Rape is one of the finest fall and winter pasture crops for sheep and hogs that can be grown. They make both growth and fat upon it. In an experiment made at the Wisconsin Experiment Station, one acre of rape was equivalent to 2,767 lbs. of grain when fed to hogs.

When threshing, see that the straw is carefully stacked convenient for feeding and bedding the stock during the winter. Do not leave it in loose piles in the field to rot and waste.

ALFALFA.

In several articles in different issues we have urged that attempts should be made to successfully produce alfalfa in the South. There has never appeared to us to be any reason whatever why the crop should not grow here as well as in any other section, and yet few have succeeded in its production. The fault has been mainly, we believe, that sufficient care has not been taken to sow it on land in a good state of fertility and comparatively free from weeds. Alfalfa, like most of the clovers, will not grow on poor land, nor will it successfully fight the battle for existence with a strong crop of weeds during the first year of its growth. That it will grow here with success under proper conditions we have had demonstrated very forcibly by a fine sample of the hay brought to our office by Mr. Bellwood, of Chesterfield county, a few days ago. This sample was taken from the first cutting of a crop seeded on the 22d of August, 1899, and was cut on the 16th of May, 1900. The sample, which is a fair average of the whole crop, is thirty-six inches long and full of leaf. It was cut before the bloom showed, and the crop is now again ready for cutting with stalks of the same length and equally full of leaf. The hay is of a beautiful bright green color and would tempt any animal to eat. This crop was sown broadcast on a piece of good lowland clear of weeds which was finely prepared. The great advantage which alfalfa possesses over the other clovers is its enduring character. When once established it will last for from seven to ten years, giving three or four cuttings each year of the most nutritious hay, whilst at the same time improving the land by the nitrogen which it gathers from the atmosphere and the humus which it adds to the soil in its vigorous root growth and stubble. We trust that this success of Mr. Bellwood's will tempt others to try the crop. We append part of a report on alfalfa growing made by a Mr. Watson, of Nebraska, who grows 2,500 acres each year of the crop. Writing to Mr. Coburn, of Kansas, he says :

The field sowed to blue grass and alfalfa in 1884 shows no signs of decay. This field has not been fertilized since seeded, nor disked, as some recommend. The sod formed by the blue grass sown with the alfalfa prevents much evaporation of the usual moisture, and the blue grass adds much to the excellence and variety of the pasturage, and obviates all danger of bloat, no animal (sheep or cow) having bloated when pastured in this field. My experience, however, teaches me to advise against pasturing sheep on alfalfa.

The most satisfactory animal to pasture on alfalfa is the hog. To secure the best results and the largest profits, feed the hog, while pastured, enough of the flesh forming grains to produce rapid growth, and the spring pig may be marketed in the fall at from 200 to 300 pounds weight. If the hog be fed grain during the summer months less time will be required to ma ture and fatten him. Alfalfa hay should be fed to the hog while fattening. He likes it, and will leave his corn for the hay.

My field of blue grass and alfalfa is cut three times each year when not pastured; the first and second cuttings for hay. The third cutting is saved for seed. The second cutting should be cut not later than July 10. I have never seen a good seed crop obtained from the first cutting. When the first cutting is saved for seed but little hay is secured from the later cuttings.

There is a very material difference in the tonnage yield from an equal area of valley and hill land in favor of the valley land. At best, but one crop of hay and one crop of seed can be had from the hill land a year. The texture of the hill land is improved by the deep penetration of the alfalfa roots; they subsoil the land, form a storage reservoir for water, and add much nitrogen to the soil. I shall try blue grass with alfalfa on the hills this year.

Wherever there is sufficient moisture to germinate both, I would advise sowing alfalfa and blue grass together, as a larger yield and a better quality of hay are obtained than from alfalfa alone. When sown together, I use fifteen pounds of alfalfa and five pounds of blue grass seed to the acre; of alfalfa alone, twenty pounds an acre is used, sowing ten pounds each way of the field; this insures a uniform stand.

Let me urge the great importance of the most thor ough preparation of the soil for seeding. The soil should be made as fine as if for a garden. All moist ure should be conserved, and the land seeded the day it is prepared. In this vicinity experience has proved that fall plowing gives the best results; in other sections this may not be true, and each farmer should adopt the plan suited to his locality.

I no longer use a nurse crop in seeding alfalfa. When the weeds shade the ground they are mowed, and are left where they fall. Where the land is very foul the weeds are mowed three times a year, and no hay is saved the first year; but on clean land a fairly good crop of hay has been taken from the second cutting the year of seeding.

Each succeeding year emphasizes the necessity of saving the leaves of this plant. It is stated that eighty-five per cent. of the digestible protein is in the leaves. The younger the plant is when cut the more tenaciously the leaves adhere to the stem. After it has wilted, the sooner it is raked into windrows and cocked the larger the percentage of leaves that will remain on the stem. I cut it when coming into bloom, in the morning, as soon as the dew is off; and, as soon as wilted, rake it into windrows and cock it, allowing the hay to cure in the cocks.

Stacking in the field has not been satisfactory to me. In this region precipitation is so heavy that a considerable percentage of the hay is damaged in the stacks, particularly that of the first cutting, as this hay, like red clover, is too coarse to prevent the rain from soaking the stack. This does not apply to the more arid regions farther west, where, from the commercial standpoint, it is more economical to stack in the field; but in this section, where the rainfall is so great, only as much alfalfa should be grown as the owner can provide suitable covering for, whether it be shed roofing in the field or mow room in the barn.

FACTS AND THOUGHTS CONCERNING LEGUMES.

Editor Southern Planter:

When "cow" peas are sown in the usual way—without inoculation—as is the case also with some other short lived members of the same order, they do not generally derive much benefit from the peculiar gift of nature to leguminous plants, and the soil might just as well have had a crop of some other order of plants growing on it, so far as being benefited is concerned.

Such is my opinion, based on facts observed. But though used without reference to their nitrogen-gathering power, peas accomplish so many good things that one ought to sow them even if they did not gather atmospheric nitrogen. I sowed peas on a bottom land field last summer where none had been grown for twenty years at least. It was old exhausted land, and was badly washed. At one end, where it touched a neighbor's field, on which peas were raised the year before, the peas grew finely, and the roots of the peas were stocked abundantly and early with nodules. On all the rest of the field they were poorly supplied with nodules, and they mostly appeared after the peas were pretty well grown, so the crop was correspondingly poor, except on a piece of recently cleared canebrake, where the land was rich. There the growth was good, but there were few nodules. This is one case of many I could cite, and I know it to be a fact that cow peas will grow luxuriantly on land "dead poor" in nitrogen, provided it is all right in every other respect, very especially in the power to stock peas early and abundantly with nodules—they being the means whereby nitrogen is obtained. If absent or late in appearing, the young peas are stunted, and a pea is like a pig—if checked in its growth, it never gets over it entirely.

I believe it will be best to arrange for artificial inoculation, as natural inoculation is uncertain, and in most cases tardy and insufficient. Let us raise our own microbes much in the way a good housekeeper raises her yeast—namely, by starting legumes on little patches, and after they have become well stocked, in time, with microbes, sow that soil along with the seed of the legume at the rate of, say, a ton per acre. Or else, leach some of the microbe infested soil and wet the seed with the leachings. But in either case it is best to cover this inoculated seed or soil at once lest the sun kill the germ. I am indebted to Mr. J. F. Duggar, of the Auburn Alabama Experiment Station, for this excellent practical suggestion, and I have followed it this spring. This, to my mind, is a better way than depending on natural inoculation; for, even with wild native annual legumes, it is by no means uniform or universal. Depending upon natural inoculation is like depending on wild turkeys for dinner, as an Indian does, when it is so much easier and surer to raise tame ones like a civilized man.

Some will ask, "Why all this fuss about inoculation of legumes?" They have been grown for food and fertilization for 2000 years without inoculation. Mr. Edmund Ruffin introduced the pea fallow sixty years ago and had no trouble," &c. It may be answered that peas were sown in short rotation on his farms, so the fields became stocked with microbes, which is a very different thing from sowing peas as a "catch crop" occasionally at long intervals. The same is true of clover at the North, and was true in ancient times of peas, beans, lentils, and lupins—the latter being grown in Sicily to-day as of old, and they have helped to sustain the fertility of the seat of the oldest civilization in Europe. Talk of the exhausted "old fields" of Virginia!" The fields of Sicily were "old" probably before Abraham left "Ur of the Chaldees." We used to raise vetches as a "catch crop" on patches for soiling in the Old Country, and they grew well, but the wild vetch grew on every ditch bank and earth fence near by. I have heard it remarked in Old Virginia that peas do better the second year in the same land, especially if it be new land, owing, doubtless, to a better supply of microbes; and in a late issue of the New York *Tribune*, Mr. Gregory, of Marblehead, Mass., gives a similar experience with soja beans. Let all take the hint. Doubtless most of those who in the North have sown "cow" peas (as it seems to be fashionable now-a-days) never realized half the good of them. Like the man who rode in a Sedan chair without any bottom, "only for the name of the thing he might just as well have walked." I saw in some paper where a man sowed ten acres of soja beans, and was greatly disappointed at the result, and warned his brother farmers against sojas. Is it hard to guess the cause of such failure in the light of all that is now known on this subject? In many cases (at least it can be said) there are not enough microbes for early and complete inoculation of leguminous annuals in the soil. *There ought to be enough to stock the plants as soon as possible after they leave the seed leaf stage;* and this is a case where I think there is great room for improvement by a small expenditure of forethought and labor. Legumes which occupy the soil for a long period, such as alfalfa, or even clover, have time to catch up. Stools of clover very imperfectly stocked, or not even stocked at all, last December, are now, in May, covered with nodules; but peas and the short-lived species have not time for that.

Of course, it is not claimed that a supply of nodules is everything for legumes. The ash constituents must be present and the soil otherwise right. Legumes generally thrive on soils strongly alkaline, and I know of none that do well on very acid soils. Maybe acidity is unfavorable to the parasitic microbes rather than to the legume itself, and I suspect that is the fact, for many reasons. Excess of lime is bad for peas, however.

Would it not be well, when other things are equal, to give preference to legumes as farm crops. Why, for instance, should I raise German millet for feed when the same land and labor will grow a far greater amount of more valuable feed in peas, and, besides, leave the land richer instead of poorer? And this holds good with the other members of the natural orders to which those plants belong. Furthermore, as in growing legumes we have two distinct organisms to care for, it would be well for our Experiment Station people to find out for us how such conditions as heat, cold, drought, overflow, shade, light, acidity of soil, etc., affect these necessary microbes; also how far one species of plant can be used in inoculating other species. We are completely in the dark as regards soja beans, "cow" peas, velvet beans, and beggar weed in this respect; and I think that by all means we ought to add more legumes to our list of cultivated plants, for the promise of redemption to worn land is by them rather than by the grains and grasses. By growing grain exclusively, man put nature out of balance. Whether in open wood or in prairie, legumes form a good share of the original herbage, and they not only conserved but augmented the stock of fertility. I think we ought to take the hint nature gives us.

Clay Co., Ala. JOSHUA FRANKLIN.

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INCOMPLETE FERTILIZERS.

Editor Southern Planter:

By a complete fertilizer is meant a mixture of the three elements of plant food, nitrogen, potash and phosphoric acid. Such a mixture is a great convenience to the planter, as it enables him to use a machine in applying it in about the required quantities per acre; at the same time it is necessary that the fertilizer be complete in every sense—should not only contain the three elements of plant food, but also should contain them in the best proportions for any particular crop.

Incomplete fertilizer is the name commonly given to fertilizer mixtures which contain only one, or at most two, of the elements of plant food. These fertilizers are for special use, and have their proper function in economical planting. For example, in cases where a soil is very rich in organic matter through turning down legumes (clover or cow-peas), it is quite probable that the soil is amply rich in nitrogen; hence, it is needless to apply same, but available potash and phosphoric acid are needed at once to prevent the waste of the legume nitrogen. In this case an incomplete fertilizer, containing potash and phosphoric acid in available form, is all that is required, for the nitrogenous plant food is supplied by the crop turned down.

If a soil has become light and worn, and the planter wants to store up vegetable matter in his soil, his best plan is to make crops of cow-peas, to be turned under for the enrichment of the soil. In such a case it is almost invariable that available potash and phosphoric acid is also lacking. In such a case an incomplete fertilizer, containing only potash and phosphoric acid, is all that is required. The growing legume (cow-peas or any clover crop) will supply the nitrogen from the air.

Another case in point is where plants suffer from falling or lodging and early yellowing of the straw or stalks at the roots. This is caused by a forced maturity of the crop. It is an evidence that the soil contains an excess of available phosphoric acid, and consequently a fertilizer containing only nitrogen and potash is required. The falling or lodging of stalks and straw is also a sure indication that potash fertilization is badly needed. If this lodging occurs without indications of forced ripening of the crop, then potash fertilization alone is all that is required.

As shown above, the incomplete fertilizer has a proper place in soil manuring, but it must be used in its proper place. Commercially, nine incomplete fertilizers out of ten contain only nitrogen and phosphoric acid, a combination rarely of value for special applications. For example, the function of nitrogen as plant food is to force growth of leaf and foliage, invariably at the expense of blossoming when used in excess or with a deficiency of potash and phosphates. This means no grain in corn, little lint in cotton, and coarse leaf in tobacco. The special function of phosphoric acid is to promote the assimilation of nitrogen and potash, and to mature or ripen the crop. When used in relative excess, it prematurely ripens the crop, unless potash and nitrogen are present in ample quantities. It is evident therefore that a combination of nitrogen and phosphoric acid is almost invariably a poor mixture for an incomplete fertilizer, notwithstanding this is the mixture most commonly found in the hands of dealers.

There are explanations for most queer things. The fertilizer manufacturer, in order to produce a very cheap mixture, uses the cheapest materials. For example, cottonseed meal is cheap in the South, so also is acid phosphate, as the phosphate mines are in the South. A mixture of acid phosphate and cottonseed meal costs the manufacturer very little, and this mixture is most commonly found in the market as an incomplete fertilizer. It is very cheap, and only too often very dear at any price. However, these cheap mixtures only need a little potash to make them among the best crop makers, and this potash can be bought of nearly all dealers, as muriate or kainit. If, however, an incomplete fertilizer is wanted, the planter had best mix his own, or call for a special mixture from his fertilizer dealer. The ordinary incomplete brands, with flowery names, are not to be depended on.

BRYAN TYSON.

Moore Co., N. C.

AFTER HAY HARVEST, WHAT?

Editor Southern Planter:

The grass has had its first cutting, and the observant farmer will have to consider what is best to do to help on the second growth. Now is the time when your home made accumulation of manure wastes faster in the stables and barnyard than at any other time of the year. It dries up and firefangs worse by far than at any other season, and no matter whether it is kept under shelter or is fully exposed, it will be losing value if not cared for. The general recommendation is to use plaster as an absorbent, and this is all right if there is not too much dryness already in the manure. The plaster is not going to check the flight of the ammonia unless it is dampened, and can bring about chemical changes, for dry plaster is no better than dry dust of any kind. The best plan is to get the manure out on the grass stubble as fast as made. But in many cases this is not practicable in the busy summer time, and the next best thing is to see that the

manure loses no more than can be helped. The best plan we have ever tried is to mix kainit and plaster and give every part of the manure a good sprinkling as it is thrown out of the stable. Then, if it is to remain in the yard any time, put it in flat piles, and on each layer, as put up, sprinkle more of the plaster and kainit. The salt in the kainit has a strong affinity for moisture, and will not only tend to keep the manure moister and give the plaster a better chance, but it will be adding what the manure lacks most—potash. Then when that manure is hauled out on the grass stubble, where it should go as soon as possible, you have a dressing that will do far more good than ordinary manure, for the plaster and kainit will also have tended largely to the retention of the ammonia in a non-volatile form. All the mowing lands should have a dressing as soon as possible after hay harvest, and no matter how large the accumulation of home-made manure may be, it is seldom sufficient to go over the whole. Then the judicious use of fertilizer mixtures comes into play, and it will pay you to use them.

The best dressing we have ever used on grass lands is a mixture of nitrate of soda, raw bone meal and muriate of potash. Of course, the phosphoric acid in the bones is not as immediately available as that in a dissolved superphosphate, but it comes into play much sooner than other forms of the so called insoluble phosphoric acid, as the bone meal decays rapidly, and the plants are fed more continuously and gradually than with the dissolved phosphate. Then, too, the bone meal, if a good article, contains about 4 per cent. of nitrogen, which is quickly available. Then, if we add to this some of the immediately available nitrate of soda, we encourage a rank growth at once. During the growing season is the only time that the nitrate should be used, and nitrogen is one of the most important elements for grass, as it encourages the leaf growth rather than the seeding. But we want more than this. We need the phosphoric acid to tend to the perfection of the plant, and to make the potash we may use more active and available for the plant, for it has been found that potash does not have its best effect in a deficiency of phosphoric acid. Hence, we want to make a fertilizer that will be complete, and that will as nearly as possible substitute the lack of the stable manure. To this end we would mix for a ton of fertilizer to be used as a top-dressing for grass meadows (and the permanent pastures will also be greatly improved by the same dressing) say: Fine raw bone meal 1,200 lbs., nitrate of soda 400 lbs., and muriate of potash 400 lbs. Use of this mixture not less than 300 lbs. per acre. It is best to apply it while the grass is dry and a little while before rain. We used a similar mixture on our College lawns this spring, and the result has been exceedingly fine, and we propose to repeat the dose of the nitrate to keep up the growth. Of course, there is a greater reason for top-dressing meadows than there is for top dressing lawns, for nothing is removed from the lawn, the cut grass being allowed to lie and form a mulch for the roots, while the crop is taken away from the mowing field, and if its productiveness is to be kept up and increased, there is a real need for feeding the grass. If the grass is to be plowed next year for corn or potatoes, it is all the more important that the dressing should be given now, for you will not only get a heavier second crop of hay but you will be accumulating far more of vegetable matter and organic nitrogen for the corn and potato crop; and then, too, as the potato and corn crops both make large quantities of starch, and potash is an essential element in the formation of starch, it is important that it should not be deficient. But frequently the addition of potash in a caustic shape to the immediate crop may retard the germination of the seed, while if it is applied some time in advance, it becomes assimilated in the soil and is in a better condition than if applied to the crop direct. You need not be afraid that the phosphoric acid and potash will get away from you any more than the crop will use, for the soil will hold on to them till the plants call for them, while the nitrogen, in the form of nitrate, must be used at once by the plants or it will leach away from you. Hence, while the corn crop needs nitrogen and potash more than anything else, it is well to have the nitrogen in the shape of organic matter, that will nitrify during the long hot season when the corn is growing. We have never found it profitable to apply a complete fertilizer to the corn crop. The nitrogen bought in a fertilizer costs too much for the corn. Hence we have always tried to accumulate organic matter for the corn and to simply aid it in its work with the addition of the mineral elements needed. And there is no better way to do this than through the grass sod you are going to plow for corn next season, for in this way you may get the cost or near the cost of the fertilizer from the hay crop and the corn will be helped free of expense.

W. F. MASSEY.

PEANUT CULTURE.

Editor Southern Planter:

The peanut crop has all along occupied a very prominent place in Southern agriculture, and justly so, for it is one of the most satisfactory crops the Southern farmer can grow. It is often used as a catch crop when the intended crop proved a failure. In this respect it fills a very valuable position, in that it saves a season's crop. It can be planted the last of all our ordinary crops, and give a good account of itself at

harvest time. It can be planted in the water furrow of the corn crop at the last plowing, and in some cases give a better yield than the corn crop does. In cases of this kind, either as a catch crop or as a supplementary crop, care must be exercised that it is well and properly fertilized to give profitable results.

Where an oat or a wheat crop has been grown and the stubble well plowed under, it gives the most satisfaction in my experience. Something in the stubble of these grains contains a stimulant for peanuts.

After the land is well plowed a suitable grade of fertilizer should be applied broadcast and well worked into the soil. The quality of the fertilizer used has more to do with the making and missing of the peanut than any other one crop that I know of. A fertilizer containing more than two per cent. nitrogen should never be used on peanuts, because it stimulates too much vine growth, and will yield more "pops" than nuts, and the plant being an air-feeder naturally, it gets about all the nitrogen required from the atmosphere. The proper analysis of a fertilizer for this crop should be about ten per cent. potash and eight per cent. phosphoric acid. From eight hundred to a thousand pounds per acre of this worked into the soil a few weeks before planting time, will give very satisfactory results. At planting, furrows should be laid off about three feet apart with a small scooter plow, and a couple of nuts dropped in this furrow every eighteen inches or so, and covered by means of a board in the scooter stock. If the soil is moist and warm, a very slight covering is sufficient for germination, but if the soil is dry, even if warm, they don't germinate very readily; therefore in the case of dry weather when planting, they should be covered a little deeper than is necessary if weather is moist. A great many of our farmers never plant this crop until near midsummer when the conditions are most favorable for a speedy germination. They claim, and truthfully so, that they make a more satisfactory crop then than by planting in early May, as some recommend doing.

During the earlier stages of the crop's growth, the ground must be kept constantly stirred, and all weeds and grass kept from making any headway. After the crop gets well under way, however, it can generally take care of itself very well, four or five workings being about all that is necessary, everything of course depending on the season and amount and frequency of rains.

In our Gulf country the variety most in favor is the Red Spanish. They grow in a very compact bunch that are easily harvested, while the old White variety, even if they are supposed to yield a few more bushels per acre, gets scattered all through the soil, and is difficult to harvest clean by hand. Of course, where the crop is grown for hog feed, the White variety is certainly the best, as the hogs will find them however much scattered. In conclusion, I would urge upon all the farmers of the South to grow as many peanuts as possible, for there is more money in peanuts than there is in eight-cent cotton, a fact which some of your readers may doubt, but it is a certain fact all the same.

C. H. McQUARRIE.

Walton Co., Fla.

MOISTURE CONDITIONS OF SOIL IMPORTANT TO CONSIDER IN SECURING GOOD TILTH.

Editor Southern Planter:

The importance of thoroughly understanding the principles which underlie proper tilth is recognized by every intelligent, thinking farmer, yet too many are still neglectful or ignorant of the principles which underlie the management of soil to secure good tilth under all conditions. Plowing, which is usually the first operation upon the soil, should be thoroughly and properly done, for after-cultivation can never make up for defects in this fundamental operation. The soils should be moist enough so that, as the furrow slice bends, it will break and crumble, leaving it in a pulverized condition, rather than in clods or lumps. The amount of moisture in the soil is a very important factor to consider when plowing, and also in the harrowing and after-cultivation. The moisture in the layer of agricultural soil can be quite largely controlled by proper methods of tillage. If we wish to dry sod land which has been wet by heavy rains after plowing, we can, by rolling, re-establish to a large extent capillary attraction and bring the water to the surface for evaporation. The process of drying can be checked at the proper stage by thoroughly pulverizing the upper portion of the soil, which will break the connection of the soil particles and act as a mulch. This matter of being able to control the moisture content of the soil to a considerable degree is worthy of careful consideration, as it has much influence upon the temperature and mechanical condition of the soil. Especially in seasons of drought, it may mean the success or failure of the crop. The difference between cultivating land one inch in depth and three inches in depth, in its different effects upon the moisture content of the soil, is very considerable, as is also the effect of the styles of tools used in the work. The tool making wide, deep grooves and ridges increases the rate of evaporation, while one which pulverizes and makes the soil very fine will decrease the rate of evaporation. The first exposes more surface to the air, and consequently the moisture evaporates more rapidly. The other not only more completely breaks the capillary attraction by which the water rises to the

surface, but exposes less surface of the soil to the air. Thus we see how, by intelligent methods and selection of implements, we can to a considerable extent control this most important element of moisture, which so largely contributes to the welfare of the crop, in its influence upon the temperature and mechanical condition of the soil, and in securing for the crop its nutriment from the soil or from the fertilizing elements which may have been added.

J. A. TILLINGHAST.

Agricultural Experiment Station, R. I.

SORGHUM FOR FORAGE.

Mary Best, of Medicine Lodge, Barber county, Kansas, who has probably been as closely in touch with, and as intelligently observant of the saccharine sorghums for both sugar and forage as any person living, writes, under date of March 12, 1900, to Secretary F. D. Coburn, of the Kansas Board of Agriculture, saying :

The prevailing opinion throughout this region seems to be that sorghum will grow anywhere ; well, that's a fact, but the best results are obtained from better work and a good deal less trust in Providence. Too much care cannot be given the preparation of the ground. The year 1899 was a very poor season for all forage crops in our district, but where good work was done, the yield was almost treble that obtained by slipshod farming—the seasons are not all to blame for our poor crops.

This crop is often brought into disrepute by the way the seed is put into the ground, but more often by the manner of harvesting. There are a number of ways to plant ; each has some advantage. If one wishes to list, he should be sure and double list, or plow and then list, using ten to fifteen pounds of seed per acre, and keep thoroughly cultivated. For hay, plow ; then follow closely with harrow and drill, using one bushel of seed per acre. If preferred, seed can be planted with a corn-planter. It is not so easily washed out as the listed seed, and can be sooner cultivated. The seed can be taken off with a header, and stock turned in to dispose of cane left standing. This is a profitable and economical way of harvesting.

To cut up the main crop, we have found that corn-harvesters do good work ; the bound forage is vastly easier to handle, and saves a great deal of waste. Harvested in this way, it should not be shocked like other bound feed, but ricked, butts outward. When ready to use, load on a low wagon, butts inward, and with a hay knife or cross-cut saw cut the heads off, and thereby save both seed and fodder.

For hay, cut the drilled cane as soon as the seed is in the dough, and rake into windrows within twenty-four hours. Before another sun sets have it in cocks of 1000 to 2000 pounds, well topped out.

As to varieties, nothing has been found to equal those chosen as superior several years ago. In 1898–'99 much work was done at Medicine Lodge by the government and private persons, and all experiments confirmed the fact that Folger's, Colman and Collier still held position as the very best for early, medium and late canes. Amber is the best as an extra early or catch crop, and for northern latitudes is desirable. Seeds of these can be had from the Department of Agriculture, at Washington, which sends out enough to give a good start for seed. Nothing in the line of sorghum can equal these ; they represent years of labor and a vast amount of money. Whether the cause of the evident improvement is acclimation of varieties or selection of seed, or both, the fact remains that we can grow increased tonnage and superior quality year by year.

Collier is a general favorite ; horses show a strong preference for it, and sheep men say that Collier is the best for their purpose, the stalks being soft as well as sweet. It is, however, a poor seeder, and where grain is wanted, and for hogs in winter, we always use Colman, the thick, sweet stalks and large seed heads being greedily eaten by hogs, big and little.

After many trials, we have found that planting from a peck to one-half bushel of seed per acre, and cutting up when seed was in dough, gave the most palatable food. Such seeding makes a fine-stalked, heavy-foliaged, and yet very sweet cane, and in a dry season it stands the dry weather much better than that sown broadcast. The past winter I saw a plain instance of what the animals liked. We have in a home corral two milch cows and several heifers and calves. For some weeks we fed them Kaffir corn, sorghum hay and corn fodder ; then brought in some of this thickly listed sorghum, and at once noticed how they relished the change ; but the fun began when we went back to the cane hay and Kaffir. Old "Boss" led the rebellion, and every heifer followed suit, and for a genuine group of sulky cattle I'll back that bunch ; then we got more of what they wanted, and they at once showed what a greedy crowd they could be.

To raise seed, get the best ; then do not plant more than three pounds per acre, and two pounds is better.

We like a good crop of Kaffir corn, and grow some each year, yet in dry seasons we find the sweet sorghums far and away the better crop. They stand dry weather longer, and quality of the forage is not only not injured thereby but the sugar content is higher in dry seasons than in wet ; also the fodder is better relished by the stock ; while Kaffir corn grows very hard and woody, and is relatively an expensive feed

when so large a proportion is wasted. As a grain producer Kaffir corn far excels the sweet sorghums.

After ten years' experience, I have not found a superior or more economical feed for stock than these. As dry-weather-resisting plants, and for the quality and quantity of feed produced per acre, the sweet sorghums stand without a rival—always excepting alfalfa.

[Prof. Thatcher of the Nebraska Experiment Station, has recently sent out a report on the feeding value of sorghum. It is not too late to sow sorghum for hay in July, and it will be found a most valuable crop to supplement a deficient hay crop.—ED.]

Prof. Thatcher says:

Chemical analyses show that the feeding value of sorghum is greatest when the plant is young. When two feet high it contains three times as much nitrogenous matter, twice as much fats, and only two thirds as much fibre or woody material as it does when it has attained its growth and formed seeds. Young sorghum is an almost perfect stock food, since it contains flesh-forming materials and fat forming materials in the ratio of 1 to 7 When nearly mature, this ratio is 1 to 23, the fat-forming materials being very excessive. therefore the crop should be used for pasturage at least before the seeds form. It would be profitable to begin to pasture the sorghum when it is not more than two feet high, since the stalks first eaten off will usually produce a second growth of young cane, which will balance the increasing fat forming properties of the other crop.

Young sorghum is a very succulent food. It contains about 85 per cent. of water, or only 15 per cent. of dry matter. Over 150 lbs. per day of the green fodder would be required to furnish sufficient food for growing cattle or milch cows of 1,000 lbs. weight. The best results are obtained by using some dry feed along with sorghum pasturage.

As compared with forage plants which are available for late summer pasturage, young sorghum is somewhat deficient in flesh forming material, containing less than blue grass or Bromus Inermis, about the same as timothy, and a little more than Indian corn.

Sorghum should be cut for fodder at as early a stage as it can be well cured. Analyses show that after the period of flowering the sorghum stalk rapidly becomes more fibrous or woody and the proportion of the more valuable food principles is correspondingly decreased. Sorghum fodder does not possess any great feeding value. Even if cut while heading out, it will have a somewhat smaller amount of flesh forming material than most hay crops, and less than corn fodder. but more than straw of the small grains. The fondness live stock have for this fodder is doubtless due to the sugars (probably chiefly glucose) which it contains. Its relatively high percentage of heat- and energy producing materials makes it especially adaptable for cold-weather feeding.

Mention the *Planter* to your friends.

GRASS LAND AND GULLIES.

Editor Southern Planter:

When laying-by corn this summer, I shall follow right behind the cultivator with red clover seed. Whether this will be a success in this climate and on an upland field I cannot yet say, but in all my past experience I have never failed to get a stand of clover in this way; and on the red clay soil where I shall try it this summer, I believe it will succeed here. At any rate, that is what we are here for, and though not what may be strictly called a horticultural experiment, I am obliged to grow feed for the team I work in pure horticulture, and the incidental making of an experiment in agriculture will do no harm. In fact, for purely horticultural experiments which fall to my lot, I have a surplus of land, and on that land I propose to carry out some ideas for its improvement which I am persuaded will be of help to my neighbors. Of course I am growing cow peas. They are too important a forage and fertilizing crop in this climate for any farmer to neglect, but the land where my corn field is, is very steep and inclined to wash, and I believe that the clover will be better there than the peas, and that it will furnish me a crop of hay next spring and pasturage, and be ready for fall grain and grass, for that steep land should be kept in grass as much as possible to prevent the waste through washing. Nevertheless, I would not keep any hill land in grass so long as is the common practice in much of the upper Piedmont country of Virginia, where I have seen fields kept in grass till the grass was run out to poverty grass, and the cattle tracks have started gullies that are continually getting deeper, and the owners say that they are afraid to plow it for fear it will wash too badly. The gullies have been the result of the very practice they are following. On steep, old fields in Virginia, where I found only poverty grass and gullies, I succeeded, by deep plowing and subsoiling, in getting a heavy growth of grass and stopped the gullies. Keep your steep uplands in grass so long as the grass is heavy, but do not hesitate to renew it and make it better. Steep lands kept in pasture for years will get to washing much worse than lands that are kept in a decent rotation, and have frequently a sod buried to fill the land with fibrous material which prevents the wash. New land full of roots does not wash, and land well filled with pea and clover and grass roots will not wash. A good rotation is just as important for the keeping of hill lands in good grass as it is in the cultivation of land of a different nature. We would run a rather longer rotation on such hills, but never would allow the grass to deteriorate before renewing it. Another thing which I see much neglected in permanent pastures, and in fact on pasture lands generally at this season of the year, is the allowing of tall

weeds to grow here and there. I passed a field here recently where there is a fine sod, which has been pastured pretty close, and all over the land there were tall weeds growing to rob the grass and to fill the soil with seeds for future brow sweatings. It would take but a little while to go over the field before blooming time and cut the weeds even by hand, and thus save a great deal of future labor. Grass is what we want in the pasture and not weeds. On orchard grass which I sowed alone this spring, I noticed that the rag weed is starting. There is a fine stand of grass, and if that rag weed is allowed to take the moisture from it, the grass will be seriously hurt. The mowing machine set to cut high, will now go over the land and clip the weeds before they are large enough to make it necessary to haul them off, and they will be allowed to lie and mulch the land. Our new peas, sent us by a friend in Tennessee, are growing finely, and we hope for good results. They are said to be Mexican, and brought from the southwest part of Texas, and to be wonderful vine makers. Our earliest sown Wonderful peas are fine except on a few red "galls." We will yet top-dress the galls, for it is more important to get the peas there than anywhere else. Nothing will cure a red gall like deep breaking and peas, but it is hard to get the peas there. W. F. MASSEY.

"LONG ACRE" DOINGS.

The Rape Crop—Soaking Corn—Tent Caterpillars.

Editor Southern Planter:

We were hasty in our condemnation of the spring sown rape, which I mentioned in the June number of the *Planter*. I spoke of plowing it under and planting the field to corn. To our surprise, more than half of that rape managed to get above ground again in less than a week. It took on a rapid growth, and it has nearly swamped the corn. We are now (June 12th) occupied in trying to save both crops by soiling the rape. It pulls easy. Some of the plants will fill a half bushel measure. The hog corral adjoins the rape field, and it is but a few minutes work to feed the twenty brood sows which are running loose. This corral consists of four acres of woods, in which are living springs.

We did not know at the time of plowing under that all that rape needed was cultivation. The extraordinary rain of April 18th packed the soil so closely it was fairly "hide bound." We could have run an Iron Age cultivator roughly over the field and harrowed once a week and got our wishes. As it has turned out, we are a little better off perhaps, barring the extra labor. The simple lesson is that rape must be cultivated to get the best results, whether sowed in drills or broadcast. The capacity of rape as a forage for hogs is certainly very great, far greater than cabbage.

For two years we have soaked all the corn fed to hogs, whether shelled or on the ear. We were led to the practice by the reports of experiments made by the Kansas Experiment Station. The experiments were chiefly with steers, which showed that those fed on soaked corn made a little more gain on a little less grain than those fed on dry corn. There appears to be a pretty unanimous opinion in the Experiment Stations that soaked corn meal has a marked advantage over dry meal when fed to swine. Contrary to what would be expected, cooking food for pigs is worse than useless. It does not pay to grind corn for animals. So say nearly all the experimenters. It is true, ground corn will give about 12 per cent. gain over whole dry corn, and that is just what the miller takes for toll, and the feeder is out for time and cost of going to mill, which is considerable in a long haul.

I take it that the chief advantage in soaking corn lies in the better mastication which the animals give the kernels. I find that the teeth of pigs soon become sore when fed continuously on hard corn. When fed on the ear, the front teeth become so sore they can hardly shell it. The excrements of animals fed on dry corn contain a large proportion of undigested fragments. This is apparent to the most casual observer.

All this year we have been feeding our horses and mules on soaked corn with decided gain. Many horses have a vicious habit of bolting their grain, while old animals have faulty teeth, which prevent them from crushing hard grain. I believe we are saving 20 per cent. of grain by this simple practice. We never allow the soaked corn to become sour. It is well to have two barrels to use on alternate days. If the weather be very hot, the corn should not remain in soak more than twelve hours. In cool weather it may remain twenty-four hours or longer. Nothing can so certainly and quickly derange the digestive organs of any animal and throw it off its feed as sour corn or meal.

What a blessing is the abundance of pure water, pouring everywhere from living springs, as here in Virginia. One must have lived and raised stock in a semi arid region to fully appreciate it. The health of animals is as certainly dependent on an abundant supply of pure water as is that of man. Pure air, pure water, pure food, are important in the order named. The first two come to us here as pure gratuities. I can conceive of no more favorable conditions for economic stock raising than we have here in Virginia. I might add also the temperate climate we have, which cheapens the cost of feeding in winter, while it is tonic enough to give vigorous constitutions.

We have a joke on the crows. They have been rather troublesome in the corn—more particularly in

that which was replanted. After they had "laid by" the corn crop, they began on the pumpkins. Certainly those large, fat cotyledons did look very promising. They drilled down beside the lusty stems for the coveted seeds, but all in vain. Their persistency was remarkable. They probably do not see the point to this day. They did no injury to the plants.

Something very unusual has happened to the tent caterpillars in this vicinity. The colonies came out in unusual numbers in the spring. As many as fifteen to twenty nests could be seen on a single apple tree. Before doing much foraging on the leaves, some kind of epidemic seized them. Every colony suddenly died in their tents, closely gathered in bunches. I should like to know if this distemper, whatever it was, has been wide spread. I would have sent some specimens to a microscopist if I had noticed the phenomenom at the time. It was only some time after the total extermination that it occurred to me that the proposed measures against them had become unnecessary.

No signs of any chinch bugs thus far.

Charlotte Co., Va. OLIVER C. WIGGIN.

THE NECESSITY FOR HUMUS.

Editor Southern Planter:

Although I was born and raised on a farm, I cannot now be called a practical farmer, for although I have, most of my lifetime, had interest in agricultural pursuits, yet my farming of late years has been of an experimental nature. I read agricultural journals with pleasure and profit, especially the *Southern Planter*.

One thing I wish to impress upon the farming community is not to neglect to put humus-making matter into the soil, no matter from whence it is obtained. To a very large extent the success of the crop is in proportion to the amount of humus in the soil. It is always conceded that a good crop follows tobacco, and this is generally attributed to the amount of commercial fertilizer used. Now I claim that that is not strictly the case. Commercial fertilizer, with the proper help, will make tobacco, but there are but few people, in my opinion, who have ever taken thought of how much humus is put into the soil by the roots of the tobacco crop. If it were not for that fact, tobacco would surely be a great agent to impoverish the soil.

Humus can be obtained in many ways, as from stable manure, vegetable matter—even rotten wood and chips. I know by experience, and also observation, that chip dirt and its cousins, woods' mould and swamp muck, is one of the best of humus makers for fruit trees.

Clinton, of Cornell Experiment Station, says that humus is able to retain 181 per cent. of its weight in moisture. If it is only able to retain one-half of that amount, it will certainly pay well to invest labor and money to put more humus into the soil.

My experience teaches me that, as an improver, there is nothing that will show quicker on an old gall than to plow in half-rotten chips, bark and leaves mixed. If that is done, and a light top dressing of manure given, clover and grasses will be sure to make a fair stand and form a sod.

Clover started on a gall with a top dressing alone will not last more than one season, because the clay is so dense that the water lays on the top, and freezing will heave the soil and winter-kill the crop. This can be largely prevented by plowing in such coarse humus-making material as I have described. I have tried it and it gave me satisfaction.

Goochland Co., Va. EXODES.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Forage Crops to Supplement Hay Crop.

Will you kindly advise me through the *Southern Planter* what forage crops are best adapted to this latitude and soil, to be sown after wheat harvest, on the wheat stubble plowed under, or upon clover sod intended for corn next spring? We are just south of 39° parallel, county of Shenandoah, and soil is stiff red clay and flint, with clay subsoil. We will make no hay, owing to drought, and must supplement in some way. I have been thinking of trying sorghum for this purpose. Will this do well here, and how should it be sown and cultivated, and how cured? What is the best variety? This crop is considered dangerous for cattle; how about it when cured for hay? Can you suggest something else as better adapted to this section? Is sorghum easier cured alone, or mixed with cow peas? Can alfalfa be successfully grown on our lands? I suppose after July 15th would be too late to sow and cure cow peas for hay, would it not?

Shenandoah Co., Va. W. H. NEWMAN.

There are two or three varieties of peas that are capable of ripening a crop of seed in sixty days after sowing. These are Warren's Extra Early, New Era, and the Black-Eye Early. The last is sold by J. M. Hudson, of Pine Bluff, Ark. I had peas from him that were sown in April and gathered early in July. I sowed them the 13th day of July and gathered the ripe peas the 13th day of September, and they could have been cut for hay by the first of September. The Warren pea makes a larger vine growth and is about as early. These can be had from seedsmen, and I suppose from T. W. Wood & Sons, of Richmond.

But the ordinary Black pea which is sold in Richmond would, I believe, get into hay-making condition if sown as soon as the wheat is cut, if you do not have frost in September.

Sorghum will make you a fair cutting of hay, and the hay has no dangerous quality. The danger from sorghum comes from the very succulent nature of the young green growth, which causes a sudden evolution of gas from even a small amount quickly taken by a hungry animal, and will sometimes, in certain conditions of the crop, suddenly kill the animal, while in another field, under other conditions of the crop, it may be eaten with impunity. But I have never heard of the hay producing any bad effects.

German millet will make a good forage for cows, but is hardly a safe food for horses if the seed is allowed to get anywhere near maturity. It would do very well to put on the clover sod if there is no chance for the clover to make a late crop. For sheep and hogs, the best thing is to sow the Dwarf Essex rape in August, and you can feed it during late fall, and, if the winter is mild, during the whole winter and spring. Here last winter it was in feeding condition during the entire winter.

Pearl or Cat-tail millet will make a heavy crop if sown at once. Among all of these, you should get some that will do for you. But the best crop is Indian corn planted early in July, and cultivated rapidly and cut for the silo. This will be a sure crop, and will furnish you all the forage you need; and if you have no silo, you should build one at once, for I would as soon try to run stock without a barn or shelter as without a silo. That clover sod will grow you more forage in silage than in any other way, and even if the frost should slightly touch the corn, cut it at once and put it in, and it will be all right.

W. F. MASSEY.

Crimson Clover Seed—Cherries for Southside Virginia.

Please advise me through July *Planter* as to a lot of crimson clover seed. They are stripped from stem by hand. How can I get them in shape to sow? Need they be gotten out of shuck? If not, how many more pounds need be sown to make a good stand, and how early can they be sown and not seed till next spring? I noted a dozen heads of white among the crimson, otherwise similar; was it a sport, or is there a white variety?

Please name the best cherry that will succeed in Southside Virginia.

Surry Co., Va. J. B. JONES.

You cannot clean the clover seed except with a huller made for the purpose. When the seed is grown on a scale large enough for some one to invest in a huller, as is done in some other sections, the farmer can get his seed cleaned out. But for sowing at home it makes very little difference, and many farmers here think that they get better stands from seed sown in the chaff than from clean seed. Winnow them as well as you can and sow about 40 lbs. per acre of the seed and chaff, which will be about equal to 15 lbs. of the clean seed. If there is some crop to shade the young clover, you can sow at any time after the first of July. Very good success has been had from sowing among corn at last working. Others sow with buckwheat in July, and some of the finest stands I have ever seen were from seed sown among wheat or oat stubble and nothing more done. The stubble furnishes the needed shade from the sun, and the clover does finely. I have twice sown it on rough grass that sheltered it and had a good stand. Trifolium Alexandrinum has a pale, flesh-colored or nearly white head of flowers, and is much more tender in winter than the true Trifolium incarnatum. Formerly, when the seed were all imported, we had a good many of these light-colored flower heads, but they are rare in American grown seed, as they generally get killed out in winter even here. Always stipulate for home grown seed in buying crimson clover seed.

In regard to cherries for Southside Virginia, I hardly know what to say. Here no cherries will succeed except the Morellos and a few Dukes. None of the finer cherries will succeed at all about Raleigh, while directly west and northwest of us, in the more elevated Piedmont country, they do very well. So, without personal experience in your section, I could not say which would do well and which would fail, for if I was judging from appearances only, I would say that cherries ought to do well about Raleigh, while the fact is that they will not bear at all, though the trees grow. In Eastern Maryland, where all cherries do finely, I found that the best varieties of the sweet cherries were Gov. Wood, Black Tartarian, Elton and Napoleon Bigarreau. Of the sour cherries, the Early Richmond, English Morello and May Duke are about the best. These last will be pretty sure to do well with you. Whether the first list will do, or whether any of them will do, can only be known by experiment on the spot.

W. F. MASSEY.

Winter Cabbage Growing—Killing Cabbage Worms.

I have a piece of land heavily top-dressed with stable manure for tobacco, but owing to scarcity of plants I wish now to plant in cabbage. Please tell me if there is anything that will destroy insects on cabbage without make it dangerous to use them; also the best time to set plants. Will it be necessary to use commercial fertilizer on this land?

Hanover Co., Va. W. W. GREEN.

I suppose that you refer mainly to the green "worms," the larvæ of the moths that affect the cabbage. Paris green is very commonly used, but we

cannot advise it after the cabbages get of any size or begin to form heads. Pyrethrum, or fly powder, if fresh is good, but if not fresh is not better than any other dust. Air slaked lime in which a small percentage of salt has been well mixed, I have found to be about as good as any other remedy. Dust it over the heads, and when washed off by rain renew it. One of the best means for circumventing the worms is that which the late Peter Henderson once urged, Make the land so rich and work the cabbage so rapidly that they will grow faster than the worms can eat. This will do as much good as anything else. I do not know what you have put on the land, but of one thing you may be sure, and that is, you cannot have land too rich for cabbages.

At this season of the year, moisture is the most important thing for cabbages, for without abundant moisture the fertilizers will not be available, and cabbages are of such a succulent nature that they take large quantities of water, and where it is possible to turn water on the land in dry weather it will pay to do so for the cabbage crop. In your section, if you want the cabbages for winter keeping and sales, I would set strong plants of Late Flat Dutch or Drumhead cabbages late in July. Here I would set them about the last week in August, the object being to get them to heading about the last of November and into December. The general failure in this section in growing good winter cabbages is due mainly to starting too early, and getting the plants stunted and starved during the hot weather. They should be kept in the most vigorous growth during the fall, and then they will be ready to form large heads as the weather gets colder and more suitable to the cabbage. Cabbages and collards are better kept in winter here, and I believe in your section too, by bending the heads down towards the North, right where they grow, and banking the soil all over the stem and the south side of the cabbage head. The base of the head and stem is the tender part. Therefore, keep them to the South and well covered, and let the open end of the head face North so that the sun will not strike it, for the winter sun damages things when frozen more than the actual cold. W. F. MASSEY.

Grass Cutter for Chickens.

Please let me know through your paper if there is any machine that will cut up grass for very small chickens. Also the name of a good sprayer for use in an orchard.

Loudoun Co., Va. M. N.

Messrs. Wilson Bros., of Easton, Pa., whose advertisement will be found in our columns, make a machine for cutting grass and clover. The Lennox Sprayer Co., whose advertisement will be found in our columns, and whose Southern agents are Messrs. T. W. Wood & Sons, of Richmond, make a good spray pump for orchards.—ED.

Grasses for Name and Value.

Please publish in *Southern Planter* names of the enclosed grasses, and what is their value for hay and pasturage in this section?

Patrick Co., Va. J. W. TATUM.

No. 1, Arrhenatherum avenaceum—Meadow oats grass, a valuable meadow grass, especially for dry soils South. No. 2 is a Poa, but I cannot say exactly which. It is probably P. Arachnifera or Texas blue grass, a valuable pasture grass. For the certain identification of grasses, it is always best to send them entire, as the leaves and roots often have an important significance. The plants should always be just in bloom. W. F. MASSEY.

The Marl Beds of Eastern Virginia.

Editor Southern Planter:

I am told the phosphate beds of South Carolina occur in conjunction with marl. Is there any probability that there may be such deposits in this section of Virginia? We do find bones in the blue marls off the river occasionally. If such beds exist would they be above or below the marl, and near river where marl crops out, or off where it is of an earlier geologic period?

Why would it not be a good thing to mine and pulverize the marl along the river so convenient to transportation, and put it on the market as agricultural lime? It would be an efficient substitute for rock lime, as cheap or cheaper, and not so unpleasant to handle by great odds.

Why would not a combination of such pulverized marl with phosphoric acid and potash in right proportions be a good thing for peanut growers, furnishing every essential to a good crop in one bulk?

It seems to me here is a field for profit to the investor, and benefit to farmers. J. B. JONES.

Surry Co.

On receipt of the foregoing letter we wrote Prof. W. M. Fontaine, of the University of Virginia, probably the ablest geologist in the State, submitting the question to him as to the probability of finding phosphate beds in conjunction with the marls. He has kindly sent us the following reply:

In reply to your request for information regarding the question of your subscriber relating to the probability of finding deposits of phosphates in connection with the marl beds of Eastern and Tidewater Virginia, I have the following to say: There is a possibility, but not a probability, that deposits of phosphates may be found that can be utilized as phosphates, and not merely as adding to the value of the marls. The phosphates that are likely to be found will most probably occur in the green sand marls. They occur in small amounts diffused in the marl, and simply make the marl, when applied in bulk, a better improver of land. WM. M. FONTAINE.

This reply would seem to dispose of the former part of our enquirer's letter. As to the latter part we would refer our readers to a very complete article on the subject of the value of the Virginia marls as fertilizers, which we published in the January issue, 1899. They will there find tables giving analyses of a large number of samples of marls taken from various sections of the State, and a discussion of the fertilizing value of the different types. The fertilizing value of marl is increased very largely by the percentage of phosphate of lime and of potash contained in it, but the chief constituent is carbonate of lime, and it is this which gives it its main value. An examination of the tables of analyses show that a number of samples of marls from Eastern Virginia contain 20 per cent. and over of lime. They have also from 1 to 1½ per cent. of potash and phosphoric acid. Where the marls contain over 1½ per cent. of potash or phosphoric acid this is the main element of their value as fertilizers. Where the phosphoric acid or potash is less than this then the lime is the element of value. Prof. Cook thinks that the most valuable marls and those that will best pay the cost of long transportation are those which contain the largest percentage of phosphoric acid, that the most durable marls are those which contain the most carbonate of lime, that green sand marls containing but litttle of either phosphoric acid or carbonate of lime become active fertilizers when composted with quick lime, and that marls which are acid and burning from containing sulphate of iron can be rendered mild and useful as fertilizers by composting with lime. The difficulty with the marls of Eastern Virginia is that they do not contain sufficient of any of the valuable constituents of plant food to make it profitable to transport them far from the place of origin. These constituents can be had from other sources at much less cost per unit even on the site of the marl beds themselves. This, however, should not stand in the way of their being much more largely used near the source of supply, as they are undoubtedly of permanent value to the land, and can there be had for little beyond the cost of the labor of hauling and spreading. As a medium to be used in home mixing of fertilizers they are also valuable.—Ed.

Grasses for Names—Grasses for a Meadow—Cause of Failure of Timothy and Clover.

I have eight acres in oats that I will break as soon as the oats will do to haul off, and then I will harrow the land well and continue to harrow or cultivate once each week until some time in September and then sow grass seed for a meadow. My idea in cultivating so frequently is to kill all weed seed that is in the land and to get rid of everything that will germinate on the land before the time to sow the grass seed. I want to use 500 lbs. of some good fertilizer per acre. What would you think best? The land is in good condition, and made seven barrels of corn per acre last year. What kinds of grass seed and how much per acre do you think best? The land is branch bottom, and years ago we got fine crops of hay from it, but from some cause timothy has made but little growth for me lately. In spring it turns a rusty, brownish color, and some years does not get any higher than the wheat stubble that was left the year before. I know the land is in better condition for other crops now than it was years ago, yet timothy and clover will not grow as it did. Can you give a reason why it does not? This is a general complaint in this section. Some years ago I tried lime on an acre or more at the rate of one ton per acre, and have been on the lookout for the good results ever since, but have never seen any. Enclosed you will find two samples of grass that are new to me. I found them growing on ditch banks. Please give name and say what they are good for.

I am anxious to learn how to grow hay and other grasses. If we can raise plenty of good grass, we can then raise anything else we want. We have a very short hay crop this year, and there is but very little old hay in the country. Our greatest want is plenty of grass. W. A. Marshall.

Albemarle Co., Va.

One of the grasses sent us is tall oat grass (*Arrhenatherum elatius*) and the other is velvet grass (*Holcus lanatus*). The tall oat grass is a good hay grass. Velvet grass is not usually relished by stock, and should not be grown unless nothing better can be raised.

The proposed method of preparing the land for the grass seeding is excellent, and if always followed would soon enable us to get rid of the foul weeds which so largely infest our lands. The best fertilizer to use on the land will be 500 lbs. to the acre of bone meal. This, whilst slow, is permanent in its action. We would sow a mixture of tall meadow oat grass, orchard grass, herds grass and meadow fescue in nearly equal parts at the rate of three bushels of seed to the acre. The addition of 5 lbs. of red clover or sapling clover to the acre would largely increase the hay crop for the first year, and would also help the grasses if the clover would grow. I think the sapling would.

It is difficult to account for the failure of the timothy and red clover. Had you not said that you had applied lime we should have advised this, as we would have presumed the cause of the failure to be the acidity of the soil. Lime not having helped you out of the difficulty and from your description of the timothy, we are inclined to think the trouble is some fungoid disease like rust on wheat. Possibly a dressing of nitrate of soda, 100 lbs. to the acre in the spring just when the grass starts growing, would help to overcome the trouble.—Ed.

Mention the *Planter* to your friends.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

Sow successional crops of sweet corn. Pole beans and Lima beans may still be planted. Cucumbers for pickles may also be sown. Cabbage and broccoli seed may be sown towards the end of the month for planting out in the fall. Turnips and ruta baga seed may be sown.

See that all crops are gathered and used or marketed as they mature. They soon lose their best qualities when allowed to stand after maturity. When shipping to market, see that the crops, whether of vegetables or fruits, are gathered dry and well cooled off before being packed in crates or baskets, and see that the packages in which they are shipped are properly ventilated. Use only clean new crates and baskets. The appearance of the packages has much to do with the selling of the products.

Budding of fruit trees, roses and other shrubs should be attended to this month. The buds should be cut from wood of this year's growth, which should be sufficiently matured to be firm. Use only the buds from the middle of the twigs, discarding the butts and tips. See that the bud used is a true leaf bud, and not a bloom bud. The leaf buds are more pointed than the bloom buds, which are rounded; especially is this so in the peach and apple. The buds should be inserted in vigorous growing stocks, but they should be sufficiently matured for the wood to be firm and hard and on which the bark slips freely. Make an incision through the bark across the stock, and then lengthwise for half or three quarters of an inch, and turn back the bark slightly on each side of the lengthwise incision. In this opening insert the bud with a portion of the bark of the bud attached, and cover with bark turned back and fasten with a soft tie of matting or worsted. Cut off the leaf attached to the bud. In a few days, if the operation has been successfully done, the bud will have become attached to the stock and the tie may be removed in a week or ten days.

Land for the celery plants should now be got ready. Celery is a gross feeder, and the soil can scarcely be made too rich or fine for the successful growth of the crop. Throw out trenches six or nine inches deep and a foot wide five or six feet apart, and fill these with well rotted farm-yard manure, and cover with three inches of rich soil. It is too early yet to set out the plants. August is soon enough in the South, as celery is a cool weather crop. See that the plants in the seed beds are kept stocky. If crowding one another, thin out and transplant, clip off part of the tops if growing spindling.

FRUIT CROP PROSPECTS IN VIRGINIA.

Albemarle Co., Va.

Editor Southern Planter:

Replying to your enquiry as to fruit prospects, I will say that "Kenwood" is promised to have the best crop of fruit ever grown upon it. This is true of apples, peaches, plums, while of cherries and pears it is only an average.

Grapes are not so much of a factor as they once were here, for large areas of vineyard have been plowed up. I think in the county generally that the crop of apples is a fair one with the exception of Albemarle Pippins and York Imperials.

The reliable old Winesap is proving its pre-eminence as a producer for market. It is the apple for this section, and if not allowed to overbear, and the orchards have proper care, it is the best we have yet on our lists.

There will be few Pippins this year as near as I can learn.

After a long period of dry weather we are having drenching rains, which sadly interfere with harvesting wheat, and it will, I fear, affect its quality. It came too late to make good the first cutting of clover and of grass, but it may develop a good later cutting.

J. W. PORTER.

Crozet, Albemarle Co., Va.

In reply to your request for a report on fruit prospects: In this section of Albemarle county we have in sight a very large peach crop of both early and late varieties; a large crop of damsons, good crop of Japan plums, but scattering of Wild goose. Apples will be considerably below an average crop. Some orchards have a good set of red apples; others but scanty. From inquiries made, the concensus of opinion seems to indicate from 15 to 20 per cent. of an average crop of pippins and about 25 per cent. of an average of winter red apples. This is making allowance for further dropping between the present time and September. We have had very large crops of strawberries, cherries and raspberries, and prices of these fruits have been fairly satisfactory to growers.

WALTER WHATELY.

Gardenia, Prince Edward Co., Va.

In compliance with your request that I furnish your next issue with a report on the condition of the fruit in this section of Virginia, I beg to say that, from my

own limited observation, and from such reliable information as I have been able to gather from others, I present the following:

The prospect for fruit of all kinds this spring at blooming time was by far the most promising we have had for many a year, and the favorable conditions that followed, as far as we could see, justified us in the belief that we would have to prop the burdened limbs to prevent our orchards from destruction by breakage. It is certain we have had no blighting frosts to kill the bud, or blasting, chilling winds to interrupt what fruit men term the *set* of the fruit or to interfere with the even tenor of its growth. Allowing that much of the bloom failed to form fruit from some unknown cause in the operation of fertilization, and allowing for the immense destruction of the young leaves and tender fruit by the caterpillar, and also by the ravages of the curculio (the enemy that is perhaps the most formidable to the orchard), and many more drawbacks of minor consideration such as are incident to fruit, still we cannot account for the almost failure of the apple crop on some farms and general shortage everywhere, and in many localities the same may be said of pears. Peaches, however, are abundant. Many an amateur, who has looked in vain for years to peach trees that have grown to full stature to give evidence of their identity and the excellency claimed for them, will for the first time this year either be pleased to taste something good as represented or be disappointed in finding a disgusting seedling of the coarser sort, put upon him by some irresponsible agent, who has moved off to other fields to practice his wiles upon the incredulous, of which the world is full.

The Abundance plum sustains its reputation in quantity. This year the trees are loaded down, and it does seem, even where the curculio has made its mark on the fruit, the egg does not hatch; and as there is no worm, the fruit is not injured and does not fall to the ground, as is the case with other plums. Wild plums also are abundant.

The cherry has failed to yield its usual fruitage this season. They are scarce, except the Morellos, whose fruit now hangs in rich, red clusters.

Strawberries in some places have done well, but the crop is generally poor and inferior in size and quality.

The Dewberry crop is not a full one, and the Blackberry, its near kinsman, while the canes bend with the weight of the green fruit, so often fails to come to perfection no estimate can be made at this date as to what to expect. Raspberries are coming in well.

Grapes, cultivated and wild, hang in profuse bunches, and unless some unforeseen disaster befalls the fruit of the vine, the tables of housekeepers will be supplied with an abundance of this most delicious fruit; and many of our provident friends will take upon themselves the adoption of the advice that Paul gave to Timothy, and partake of the cup that inebriates to help their infirmities, and still observe that other great injunction, 'Be ye temperate in all things."

It has become necessary, it seems, of late years, on account of the myriads of insects that are depredating the orchards, vineyards, gardens and farms, to make free use of all those insecticides recommended by experts for their extinction, but with all the advantages now at our command, these pestiferous little enemies have of late wonderfully increased. It is believed by many, and there seems to be reason for the belief, that the increase of insects is due to the wholesale slaughter of insectivorous birds, whose feathers are used to gratify the vanity of her who is very aptly called "God's last best gift to man." Certain it is that very few birds are now to be found in the country. The voices of these sweet warblers are not heard in the land, and it is astonishingly strange that woman, man's helpmeet, should ally herself with his insect enemies and be so great a hindrance to his prosperity, and be content to sit up in church with so much complacency with the wing of a slaughtered "innocent" on either side of her bonnet, pointing like the ears of a Belgian rabbit towards the throne of grace, and feel no compunctions of conscience because she, forsooth, did not kill the bird.

THOMAS J. GARDEN.

FLOWERS.

Editor Southern Planter:

I am very much interested in flowers, and am glad to see one of your Albemarle county readers call your attention to them, and hope others will come in from month to month and tell us what flowers they like and how to grow them. One of the first flowers of spring is the *Jonquil*. These I admire, but common as they are all over Virginia, I have never had the pleasure of growing one on my own place here. I would be willing to exchange Dahlias, Cannas, or Golden Glow, or even strawberry plants for a few bulbs. If your reader from Albemarle county comes to Richmond next September or October I invite him to come and see my Dahlia garden, which is between two and three acres in extent. It is only three miles from the limits of the city of Richmond. I not only have Dahlias, but Roses, Gladiolus, Tuberoses, Cannas, Chrysanthemums, etc. I think he will see a sight worth seeing. I know, Mr. Editor, you love flowers and are willing to do all you can to advance the culture of them, and not only of flowers but of ornamental shrubs, to beautify our home surroundings and make it the most beautiful spot anywhere. There is one rose in particular I wish to see in every home and yard in Virginia, the climbing "Crimson Rambler,"

and if satisfactory to you, Mr. Editor, and as an encouragement to grow flowers, I will send one small bush to every subscriber to *The Southern Planter* who has not one, this fall or next spring, for ten cents each, although it would be better to get two in case the one should die. They will all have nice roots and are so hardy that very few die. I don't say only a few like this rose, but every one who sees it bloom says I must have one of those Ramblers. To get the rose, send name, address and subscription to *The Southern Planter* with 10 cents extra. There is also another tree that no yard should be without, it is so beautiful, that is Tees Weeping Mulberry. It is not only ornamental but full of fruit every year, which lasts a long time. Another flower that should be in every home is Golden Glow. It is something after the nature of a chrysanthemum, and will grow six to eight feet high, with a most beautiful yellow flower, and increases from the root very rapidly; begins to bloom here in July, and lasts for weeks.

Henrico Co., Va. M. T. THOMPSON.

ASPARAGUS CULTURE IN SOUTH CAROLINA.

Editor Southern Planter:

In a recent visit to the market gardens about Charleston, S. C., I was surprised at the extent of the gardens, as well as the perfect systematic manner in which the work was conducted to insure the earliest, most perfect products despite frosts or drouths. These gardens, especially those of asparagus, are probably the most extensive as well as the most successful in the world. As the practice differs somewhat from that of other localities, I will state the method here seen.

As the northern markets, with the exception of Boston, prefer the Colossal, this variety is most cultivated. To prepare a bed, the light, deep, sandy soils of the immediate seacoast are preferable, chiefly because so fine and so warm, and so susceptible of manipulation. The seed is sown in beds in April, and left to grow until the following February, when trenches six feet apart are opened some two feet deep by a scoop or sweep plow followed by the shovels, and some 14 or 18 inches wide, and the one-year-old plants placed on the bottom of the trenches 18 to 22 inches apart, and about an inch of soil thrown over them.

The land is well manured by compost thoroughly stirred in before trenching, but no manure is put under the plants. A field set early in March in this manner showed a perfectly even stand of plants 15 or 18 inches tall on the first of April, and the plants of size of a pencil.

Some compost and a couple of inches of soil are thrown upon the sides of these plants in May and June, and again in October. The tops are cut and removed in early winter, and light cuttings made in March and April following. From this time on fertilizers are applied at the sides of the plants or a little soil added annually, not only until the trench is full, but until filled and bedded up two or three feet high, as the tendency of the roots is to steadily creep upwards.

These beds last some fifteen years, and require all the soil between the rows to hill them up, some of them still bearing after twelve to fifteen years, and show no signs of decay. Some of these fields are simply astonishing to a first observer, being from 200 to 500 and even a thousand acres in extent. One asparagus ranch showed a pay-roll of 1500 darkies.

Some peculiarities of the soil may not be found further inland, but I believe that all the hilly, sandy lands of North and South Carolina will pay enormously in asparagus and strawberries.

The lightest, sandiest soil is best, only needing the application of manures. In most instances, rye is planted in rows each 18 to 25 feet in November to prevent the drifting of the soil.

New York. S. S. BOYCE.

STRAWBERRIES AND RASPBERRIES.

Editor Southern Planter:

I am surprised to see so little about strawberries in your journal, particularly when a man who has originated some of our finest varieties—I mean Mr. Thompson, of Rio Vista—is in your State. Having exchanged with him for years, I can testify to this: He originated the "Edith," for years the largest strawberry I ever grew (and I have over 100 varieties) and a good one. "Carry," an improvement on Haverland, and of its character, was another of his production. Lately his No. "122," is a most remarkable production in this line. Size, productiveness, quality, and beauty a No 1 variety. "Ida" is another promising one.

Earliest and Darling were also produced by him, and do well here.

Thompson's "Early Red Raspberry" was a good one, but seems to be supplanted by Miller's Early Red. This latter some give me the credit of originating, but to this I have no claim. Thompson's King raspberry is also a close competitor with the London as a red raspberry. I have also his "Ida Blackberry," which may fruit next year.

Few men have done so much towards bringing out valuable new fruits who make so little noise about it.

In the line of small fruits the strawberry still seems to be the most prominent, and while there are constantly new ones brought out some of the old ones are still held in high estimation. At our recent State Horticultural meeting a few told us that "Warfield"

and "Crescent" were their main crop. Bederwood for a pollenizer.

Here "Gandy" did better than ever before, and holds out best. "Bride of Cumberland" is a superb one among the new varieties. "New York," and "Corsican" disappointed me. S. MILLER.

Bluffton, Mo.

[Our friend Thompson lets us hear from him now and again on his small fruit production, but not so often as we would like.—ED.]

VIRGINIA FRUITS TO THE FRONT.

Second Premium at International Contest for Apples at Paris Exposition.

The following letter has been received by Mr. Samuel B. Woods, President of the Virginia State Horticultural Society:

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF POMOLOGY,
Washington, D. C., June 8, 1900.

Dear Sir,—It gives me pleasure to say that advices just received from Paris Exposition through Mr. A. W. Taylor, Assistant Pomologist in charge of the installation of the U. S. exhibits in Group VIII, Horticulture, announce that at the Second International Competitive Fruit Exhibit the Virginia State Horticultural Society was awarded second prize. Other competitions are to follow, when I hope you may hear from us again. Accept my hearty congratulations.

Very truly,
G. B. BRACKETT, *Pomologist.*

A further letter from Col. Brackett to myself informs me that the judges in this International Competition were composed of Frenchmen and Russians, and that since the above was written this Society has been further awarded a third premium in a later competition. Such awards should go far to place Virginia apples in the front rank in the estimation of the world's markets, and should show our fruit-growers that the Virginia State Horticultural Society is using its best endeavors to secure that recognition of our fruits that they deserve, and should induce every fruit-grower to join membership in this Society.

WALTER WHATELY,
Sec. and Treas. Va. State Hort. Soc.

[Before receipt of this communication, we had made a note of a report we had seen in an exchange as to the success of Virginia fruit at the Paris Exposition. We are delighted to be able to publish an official notification of the fact of our success, and beg to tender our congratulations, and, we are sure, the congratulations of all the fruit-growers of the State, to the State Horticultural Society, for having been awake to the necessity of making a proper exhibition of our fruits at the World's Fair at Paris. It cannot fail to be of vital importance to the fruit interests of the State.—ED.]

STRAWBERRY CULTURE.

Early Summer.

Editor Southern Planter:

Next to the picking season, the early summer is the busiest time with the strawberry grower. Thorough, though shallow cultivation, should now be given. It is not only better, but really cheaper, to stir the soil after every packing rain. Constant culture answers three separate purposes, all highly important. It kills all weeds and grasses effectively and inexpensively. It lessens evaporation and conserves moisture to an astonishing degree. It renders the soil pervious to the atmosphere, a necessary condition of thrifty plant growth.

An experiment very easily made will convince the most skeptical of the fact that good cultivation pays and pays well. Select two rows, or more, if desired. Let the soil and general condition be the same at the start. Cultivate one frequently, fining the soil after every packing rain. Cultivate—or, rather, work the other, for work is the word when cultivation is delayed and grass gets a hold—at intervals of a month. The difference in the condition of the rows which receive the good and the bad cultivation will be the convincing argument. This will be most marked, especially if drought supervenes. It will begin to manifest itself before five days are over and become greater as the weeks pass. Nor in the end will any money be saved in cultivation; for the one "working" will cost as much as the three cultivations.

The word "working," as applied to crop cultivation, always impressed me like the word "works" when applied to an author's combined writings. The words bring before the mind's eye something lengthy and tedious—something that has been delved and sweated over, and, after all, oftener than not, found futile.

But to return to the subject in hand. The proper implements to cultivate strawberries are a small tooth horse cultivator and a light hand hoe. Two furrows with the cultivator should always be run in each middle. Go down one side of the row plowing as evenly near the plants as is safe. About six inches is the proper distance from young plants. Then come up on the other side doing likewise.

Following the cultivator should come the hand hoes stirring the soil in between the plants and other spots not reached by the plow. Stirring the soil by means of the cultivator is so much quicker and cheaper than by hand hoes is the reason that careful plowing as close to the plants as is safe should always be given; and quickness, expedition, is an important thing in strawberry culture. It enables you to select just the right time to cultivate the plants—the time when soil and weather is at the best.

It is surprising how quickly and cheaply cultivation can be done when done often. Only when delayed does it become terrible, much as the man's annual haircombing, which was terrible simply because it *was* annual.

Nevertheless, the strawberry can stand more neglect than almost any crop that grows. Many a grower allows grass to possess his strawberry fields till about August 1st. Then making a desperate onset, he plows, digs, grubs, pulls, tears and totes grass till his patience

and his time is exhausted. If the season is favorable' he gets a fair crop of inferior berries. But if timely rain withholds, his plants, weak in vitality, dwindle and pass in nothingness or its equivalent as far as profit is concerned.

Old strawberry rows which it is desired to continue in bearing should, as soon as the crop is off, be sided by a turning plow, leaving as narrow a strip as is practicable to get a good stand. On this strip left chop out the plants with hoes, leaving the plants a foot to eighteen inches apart, as the soil is weak or strong, and the variety a weak or strong grower and runner-maker. A little later, split out the middle with turning plow, throwing the earth back to, but not on the plants. A good time to apply fertilizer is in the furrow on each side of the row before the earth is thrown back. Cotton seed meal, at the rate of 500 to 800 lbs. an acre is good for summer use. Being fairly rich in ammonia, it induces a steady but not too sudden and tender plant growth.

This plowing done, the old bed or field should be cultivated just as above given for a young field. If practicable, it is best to mow the old plants, loosen up the mulch, and, while dry, burn all off together before the rows are sided. This burning effectually destroys all parasites and disease spores and does the plants no harm. In a short while, they sprout up brighter, greener, stronger than ever.

Cultivation should continue as late in the season as grass grows. It is our rule to give the last thorough cultivation about August 15th. After that, the soil is stirred no more till the berries are gathered the following spring. But all weeds and grass are carefully scraped out with hand hoes till the mulch is applied a few weeks before ripening time.

O. W. Blacknall.

Vance County, N. C.

SELF-STERILITY OF GRAPES, &C.

Editor Southern Planter:

Noticing in your June issue an article on the above, would say that not only grapes and strawberries need proper fertilization, but some varieties of red raspberries, and also some blackberries, particularly "Ida," the earliest blackberry I am acquainted with, and Maxwell. These two varieties should have alternate rows of Early Harvest for best results. Without this a great deal of the fruit on the "Ida" and Maxwell will be imperfect.

Among the pears, I think Kieffer and Le Conte should be mixed in the orchard. The fruit is more perfect.

Among plums, Abundance is, I think, for this section one of the grandest plums ever sent out, but I prefer to have Red June or Kelsey trees planted in connection with it for pollenization.

Henrico Co., Va. M. T. Thompson.

When corresponding with advertisers mention the *Southern Planter.*

MISSOURI APPLES AT THE PARIS EXPOSITION.

Missouri takes another first prize on apples at the Paris Exposition. On May 23d, Assistant United States Pomologist writes me from Paris that we were awarded another first prize on apples.

The varieties shown in the exhibit were Ben Davis, Gilpin, Hopewell, Minkler, Willow Twig, York Imperial, Clayton, Grimes, Ingram, Geneton, and Winesap.

L. A. Goodman.

Westport, Jackson Co., Mo.

We noticed in one of our exchanges that Virginia had secured a prize for apples at the Paris Exposition, but we have no official information on the subject. Perhaps the President of the State Horticultural Society or the Secretary may be able to give information on this point. We should not hide our light under a bushel, and let other States get ahead of us in making known their successes.—Ed.

SPRAYING FOR BUGS AND BLIGHT.

The barrel pump is considered at the Vermont Experiment Station the most useful spraying apparatus yet devised. The addition of Bordeaux mixture to Paris green solution makes an application more effective in killing the potato beetle than one of the Paris green alone. The Bordeaux mixture not only tends to prevent blight but also helps to keep away the potato beetle. Paris green alone may be applied for potatoes—one pound to 100 gallons of water. A little lime should be added to prevent burning the vines. Place the Paris green with about an equal weight of fresh stone lime in a pail of hot water, mix thoroughly as the lime slacks, and let stand a couple of hours before applying. If the Paris green is used with Bordeaux mixture, no other lime need be added. Paris green alone may be applied as soon as the beetles become troublesome. The Vermont Experiment Station recommends making the first application of the Bordeaux-Paris green mixture during or just after the blossoming period. The second application should follow about two weeks after the first, and a third later on, depending on weather conditions and prevalence of insects. Bordeaux mixture costs about eight-tenths of a cent per gallon, and from 150 to 200 gallons are applied per acre, and for three applications about 500 gallons. The total cost for three applications is $4 for the Bordeaux mixture and $2.10 for labor—a total of $6.10. To this must be added the cost of two or three pounds of Paris green. Two men and one horse will apply the mixture to five acres or more per day.

In a recent issue of *Green's Fruit-Grower*, I find the following:

"Prof. Green said that last summer his attention was called to an orchard that was planted in an old pasture. Instead of plowing the ground, large holes were dug. Sheep continually keep the grass clipped short. This year the fruit in this orchard had endured the drouth better than in any cultivated orchard. The professor said that this was a pointer on how to manage hillside orchards."

Live Stock and Dairy.

DAIRYING IN THE SOUTH.

In our last month's issue we published a paragraph giving particulars of the butter shipped into Virginia and North and South Carolina for the year ending June 30th, 1899. The amount sent into Virginia was stated at 1,159,400 pounds. A subscriber from Farmville writes us as follows: "Where was this butter sold? From 500 to 1,000 farmers in this vicinity who keep from two to five milch cows the year round are unable to sell their product at a paying price. Would like to know where the market exists. At present butter has no value."

In reply to this, we would say that a very large part of the butter shipped into this State is sold in this city and in Norfolk. Probably in this city alone from 5,000 to 10,000 pounds is sold per week, and sold at a good price. The reason why the butter made by the keepers of from two to five cows cannot be sold is because the quality is not what the market calls for, and is so variable that no large buyers can venture to contract for the products of these small dairies. The butter shipped in here is mainly from the Elgin District in Illinois, and from New York dairies, and it is of absolute uniform quality, and that of the highest, and is supplied in a certain fixed quantity every week. This is enabled to be done by the concerted action of the butter producers in those sections, and the quality is secured by rigid supervision of the product by a constituted authority representing the butter makers. Not until Virginia farmers will combine and establish creameries where butter will be made on scientific principles and in the best manner can they hope to control or even share the trade of their own State, except in such cases as where sufficient cows are kept on *one* farm to make it profitable to establish a private creamery equipped with modern machinery, and under the supervision of a competent dairyman educated in the science of butter making. We know of two or three such farms where from 100 to 200 pounds of butter per week is made, and this butter sells freely in competition with the Elgin and New York butter on this market, and commands even a higher price. Butter making is now a scientific business, and the public have been educated to know what good butter is, and will not buy an inferior article.

JERSEYS IN THE SALE RING.

In our May issue Mr. T. S. Cooper announced that he would sell a large herd of imported Jersey cattle on the 30th of May, at Linden Grove, Coopersburg, Pa. The sale took place as announced, and was a pronounced success, thus proving not merely that the beef breeds but that all breeds of cattle are now in demand. Six stock bulls sold for $2,755, or an average of $450 each; 43 cows sold for $17,685, an average of $411 each; 33 heifers sold for $8,610, an average of $260 each. The young bulls sold for $4,340, an average of $271 each. The grand total was $33,390, an average price per animal of $340 each. The highest priced heifer, Golden Sultanne, sold for $1,600. The highest priced cow, Golden Lad's Pretty Rose, sold for $1,325. We are glad to observe that a number of the finest animals came South, being purchased by the Biltmore Farms to add to their already magnificent herd.

HOW TO MANAGE THE HOG CROP PROFITABLY.

Editor Southern Planter:

In carrying on quite a varied system of agriculture we have opportunity to prove many of Prof. Massey's doctrines, and often remark how practical and sound they are; but before there is unanimity on all questions, either Prof. Massey must change his views or we must.

Prof. Massey's statement in the June number of the *Southern Planter*, that "there is no need for feeding anything but brood sows and a boar from December to spring-time on a well ordered farm," is entirely contrary to our ideas and practice, and may partly explain why the Professor does not see greater value in artichokes. This method of feeding limits us to one litter a year from a sow, when she is quite capable of producing two litters of strong, vigorous pigs. Perhaps the cost of raising the fall pigs on corn, middlings, and other grain foods, with the labor of giving them to the pigs, is too great to leave a profit that is worth trying for. But let their main food be artichokes, which they, of course, dig themselves, and I believe Professor Massey will allow that the Southern farmer can not only afford to raise a fall brood, but by not doing so is missing almost half of the profit he might make from his sows. To feed sows twelve months for one brood of pigs does not exactly agree with my ideas of economy, and particularly if those sows have to be fed from four to five months on corn.

That sows will produce large and strong pigs after receiving nothing but artichokes from December till they farrow in April, we have had ample evidence, and the corn which Prof. Massey says "we can afford to feed in winter to the breeding animals," we can save for purposes artichokes could not fill.

The principle that the farmer in his management cannot afford to do anything to reach an end that he can attain in any cheaper and easier way, I think would be a right one to follow. The corn will on the average cost somewhere about fifteen times as much per bushel as the artichokes when it contains only four times as much nutriment and is not as healthful by any means. It is far better to put on fat, I admit, but not nearly as good for breeding sows.

Late last fall we had the sows farrow. When the pigs were big enough to wean, they were fed some corn with all the pumpkins they could eat. About the first of January they were turned on the artichokes, and kept there until a couple of weeks before the crimson clover came in bloom, when they were given access to it. On May 16th, one two horse wagon load of these pigs was sent to Richmond. The check received called for $101.17. I kind of thought there was some money in keeping pigs through the winter, and my good opinion of artichokes and crimson clover was not lessened, for these pigs hardly saw enough corn during the last four months of their life to know what it was.

Crimson clover is unmistakably a fine feed for pigs. They eat away at it as long as there is anything green to get, and not only grow on it, but lay on enough fat at the same time to make exactly the kind of pork that is wanted for the summer market.

ALBERT R. BELLWOOD.

Chesterfield Co., Va.

THE FOUNDATION OF THE FLOCK.

Editor Southern Planter:

In the selection of sheep to commence sheep raising, the quality and weight of the fleece should of course be regarded, but aside from this, the properties most desirable are: size, early maturity, constitutional hardiness, productiveness, disposition to fatten and lightness of offal.

In regard to size, it is a disputed question whether the large breeds do not consume more food in proportion to their size than the smaller ones. The result of an experiment made in England by Dr. Parry, as stated by himself, was as follows: By breeding small sheep instead of large ones on his place, he was enabled on the same area to increase the number of his sheep from 660 to 890, and increase his profits from $2,250 to $3,620. One experiment is never enough to establish a fact, and the general opinion among breeders is that large animals are the most profitable, and that at all events they sell the best. It has been found however that very heavy sheep are not so well suited to elevated and precipitous mountain ranges.

The lungs of animals are of the utmost importance, as upon their size and soundness the health and strength of the animal principally depend. As to the form of sheep, the size and breadth of the lungs (as indicated by the size and breadth of the chest) is the point to be first regarded. The head should be small, as by this the birth of lambs is facilitated. Not only this, but a big head on sheep, hog, or steer is not regarded with favor by the butcher. The length of the neck should be in proportion to the height of the sheep, not only because it conforms to the law of symmetry but so that the sheep may collect its feed from the ground with ease. Contrary to the opinion of Thomas Hale, most breeders agree that the bones should be small. Extremes in breeding for smallness of bone should be avoided. My father had two fat hogs that broke their legs in the pen when trying to get up. For the foundation of the flock the flock master should take pains to secure pure-blooded ewes of the breed he desires to keep, and not more than three years old. They should be in fair condition at the time the ram is placed with them. Five months is the period of gestation, and if lambs are desired to be dropped about the first of February, the connection should take place about the first of September.

Thomas Hale, an English writer, whose large work on *Husbandry* was published more than 140 years ago, gives this direction for choosing a ram: "Let the ram be young, handsome, and well-shaped, his wool clean and well grown, and the skin underneath of the same color. Let the body be long and large; his forehead broad, round and rising; his eyes be large and of a cheerful aspect, and his nostrils straight and short." Tully, a distinguished breeder of more recent times, adds that "his head should be small, the breast broad and well forward, his girth, or chest, full and deep."

I advise those who want to commence sheep raising to buy a few at first, and only the best that are obtainable, though the price should be four fold the price of ordinary sheep. There are always sheep men who, from increasing age or some other cause, are desirous of quitting the business, and have clearing out sales, in which their whole flock is sold in lots, or singly, to the highest bidder without reservation, and the buyer can get the best by paying a good price. An intelligent breeder will seldom allow you to pick his flock, but it sometimes happens that when you have shown him the ones you want, and he sees he has enough others just as good, will sell the ones you have pointed out. In buying sheep, as in buying horses, the word of the buyer cannot always be trusted. His memory may not be good, or he may not have the proper regard for the truth, but in regard to their age, the mouths of the sheep will never lie. When about 15 months old, a sheep has two broad teeth in front, at

27 months, they have four; at 39 months, six; at 57 months, eight. Between four and five years old they will begin to lose teeth.

Two years old is the best age to buy them at, and they will bear good lambs until they are seven. Whatever breed is purchased, let them be strong, healthy, well-built, oily wool, well attached to the skin. Nothing shows poor condition more than dullness of the eyes and looseness of the wool. Any breed will decline on coming from a rich pasturage to a poorer one, and if you cannot at once supply them with as good fare as that to which they have been accustomed, you must supplement your poorer grass with a little ground oats or corn. The foundation of the flock must have as good, if not better, board than that provided by their former landlord.

The farmer having decided on the breed of sheep which is best for his locality, and obtained the nucleus of his flock, must next determine at what season of the year it will be best to have the ewes yean, or drop their lambs.

By keeping our ram shut up until the fore part of December, we formerly had our lambs come in the fore part of May, after the weather had become mild and pleasant and the sheep had been turned out to pasture. The lambs came strong; were quite sure to live without much trouble; were active, playful, and happy. That was before the urgent demand came for spring lambs to supply the butcher with baby mutton. Now here, as in most other places in the Eastern and Middle States, near towns, it is advisable to have them come earlier, so that they may obtain greater size by the time they are wanted most, and will bring the highest price. Early maturity, in animals, is a very desirable property. The quicker the animal can be grown and disposed of, the less it will consume, and the greater will be the profit.

Productiveness is a property possessed by some breeds in greater degree than by others, and it can be increased by careful selection in breeding, and by good food and care. Pets almost invariably have twins. Ewes taken from the bleak mountains of Scotland to a milder climate on the lowlands and supplied with better food, generally have twins.

The improvement of our sheep and other domestic animals can only be accomplished by a skillful selection of those males and females, the union of whose qualities will remove defects and produce the qualities desired. The sheep raiser cannot expect to improve his flock, or even keep it up to its present excellence, without a rigid adherence to this foundation principle.

J. W. INGHAM.

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PIG FEEDING EXPERIMENT.

Peanuts, Cow-Peas, Sweet Potatoes vs. Corn.

At the South Carolina Experiment Station an experiment has recently been carried on to determine the relative value of cow peas, peanuts and sweet potatoes as producers of pork in comparison with corn.

There were four pens and three pigs in each pen. Two of these in each pen were 7-8 Berkshires, one sow and one barrow. The third in each pen was a grade Jersey Red barrow. The Berkshires were from the same litter and eight months old at the beginning of the experiment. The grades were eleven months, all four of the same litter.

They were fed as follows:

Pen No. 1 exclusively upon ground peas (peanuts).
Pen No. 2 upon sweet potatoes.
Pen No 3 upon field peas.
Pen No. 4 upon corn.

They were given in each case all they would eat, without waste.

The hogs in Pen No. 1 weighed 429 lbs. at the commencement of the experiment. Pen No. 2 weighed 486 lbs. Pen No. 3 weighed 479 lbs., and Pen No. 4 weighed 468 lbs. Pen No. 1 gained 151 lbs. up to the completion of the experiment. Pen No. 2 gained 80 lbs. Pen No. 3 gained 135 lbs., and Pen No. 4 gained 152 lbs.

The following conclusions and deductions are the result of the experiment:

On land of the same character corn yielded 15 bushels per acre.
Spanish ground peas (peanuts) 90 bushels per acre.
Cow peas 10 bushels per acre.
Sweet potatoes 200 bushels per acre.

The cost of production of these crops, assuming that they are to be harvested by hogs, will, with the exception of the cow-peas, be practically the same.

It required 6.02 lbs. corn to produce 1 lb. pork.

It required 4.43 lbs. ground peas (peanuts) to produce 1 lb. pork.

It required 32.47 lbs. sweet potatoes to produce 1 lb. pork.

It required 4.91 lbs. cow-peas to produce 1 lb. pork.

One acre of ground peas (peanuts) will produce 487.5 lbs. pork.

One acre of corn will produce 139.5 lbs. pork.

One acre of sweet potatoes will produce 369.5 lbs. pork.

One acre of cow peas will produce 122.5 lbs. pork.

At the foregoing rates of yield and pork production, and estimating pork at 5c. per pound:

Corn is worth per acre $6.97.
Ground peas (peanuts) are worth per acre $24.37.
Sweet potatoes are worth per acre $18.47.
Cow-peas are worth per acre $6.12.

A record of the mean temperature for each period was kept. This ranged from 32½ degrees to 46 degrees. No appreciable variation in the gain of fat is traceable to this cause.

The hogs used in this experiment were too far advanced in age, growth and fatness for the best results. "Pig feeding" should commence in pighood.

A METHOD OF DETERMINING THE PER CENT. OF FAT IN CREAM.

Editor Southern Planter:

In handling cream, either as the producer or other wise, it is important to know the per cent. of fat in it, as fat is the ingredient which gives it value.

The writer has found that determinations made by the Babcock test for the per cent. of fat in cream are not always satisfactory because of the difficulty in getting a representative sample, as well as in measuring the amount equivalent to eighteen grams, on account of the variation in specific gravity due to the difference in the per cent. of fat in cream.

Probably the most satisfactory, as well as the most accurate, method of determining the per cent. of fat in cream is to determine the per cent. of fat in the milk from which it is taken; then estimate the amount of fat in all the milk; then deduct from this the amount of fat in all the skim milk, which can be found by testing the skim milk. The amount of fat thus determined will be the amount of fat in the cream. After weighing the cream, divide the pounds of fat in the cream by the pounds of cream, and multiply the quotient by one hundred. The product is the per cent. of fat in the cream.

The above assumes a familiarity with the Babcock test.

When the per cent. of fat of cream has been deter mined, it is an easy matter to mix the cream with either whole milk of known per cent. of fat or skimmed milk, so as to make a cream of any per cent. fat less than that had. W. D. SAUNDERS.

Exp. Station, Blacksburg, Va.

SHORTHORNS IN VIRGINIA.

We have recently had the pleasure of spending a day on the fine plantation of Major J. T. Cowan, in Montgomery county, Va., and of seeing his grand herd of Shorthorn cattle. This plantation is located on New River, and is surrounded by some of the finest scenery of that beautiful section of the State. It lies nestling at the foot of the mountains, and has on it some of the finest and richest land in the State. The pastures reminded us of those of the "Old Country" in the luxuriance of the grass, and the visit brought vividly to our mind a day spent on the cele brated farm of Mr. Booth, at Warlaby, in Yorkshire, the original home of the great Booth family of Short horn cattle. The plantation extends to something near 5,000 acres, and has upon it, in addition to its rich grass lands, fine fields of wheat just ready for harvest and a corn crop as good as any we have seen this year. The herd of Shorthorns is headed by the grand Scotch bull Champion Cup, the best living son of Cup Bearer. The females in the herd represent The Duchess, Gwendoline, Moss Rose, Young Mary and Josephine families, and they are fine representatives of the breed.

Arch duchess is one of the best types of the Bates family, and was sired by Knight of Weldon, formerly the property of Major Bentley, of Pulaski, and sold by him to head a herd in Iowa.

Gwendoline III is probably the most beautiful Shorthorn cow in the South, and there are few in the country to beat her. She weighs, probably, about 1,600 lbs., and is a low-down, blocky cow of the true Scotch type. She is a prolific breeder, having produced her seventh calf before she was eight years old.

Seamaid II represents the famous Cruickshank "Secret" family. She is out of Seamaid (the dam of Champion Cup), said to be the best Cruickshank cow in America.

The representatives of the Josephine family are numerous in the herd, and all show the fine type of the original imported Josephine presented by her owner to Mr. Renick after he had refused to price her to any one. The young heifers and calves are a fine lot, and no one in the South desiring Shorthorns need go further than Montgomery county to find what they want and be able to compete with the best in the country.

EXPERIMENT WITH RAMBOUILLET SHEEP IN VIRGINIA.

Editor Southern Planter:

At your request I will give you an idea of my luck in raising lambs from the different breeds. First, as to the cross of registered Lincoln bucks on Rambouillet ewes. I have about five hundred lambs of this cross that I think are very fine lambs. I have about two hundred lambs from Shropshire bucks and Rambouillet ewes which are growing nicely. I have also some Rambouillet lambs with no cross in them. At this time it is impossible to tell which kind will be best when grown. But I am rather inclined to think the Lincoln crossed lambs will be the best.

Henrico Co., Va. JNO MATHEWS.

Low legs, a blocky frame, sound lungs, and sound and vigorous digestion are the conspicuous points of the Cruickshank Shorthorn. Built by practical Scotch farmers on a practical ideal, fed in a Scotch climate on the common produce of the soil, the Scotch Shorthorn is, like his owner, very plain in his tastes, thriving well on any good pasture in summer, and on "neeps" (turnips) and straw in winter, and robust enough to thrive in any climate where a Scotch man or beast finds it profitable to live. Turnips are highly conducive to health and rapid growth; the oat straw, from which his master's porridge and cakes have been taken, is also good in its way, and if he gets a good handful or two of good oatmeal or a pound or two of good oil cake along with his "neeps," he will, either pure or crossed, hold his own from start to finish with any other breed.

The Poultry Yard.

CULLING THE FLOCKS.

The spring hatched chickens should now be sufficiently grown and developed to enable judgment to be passed upon them as to their fitness to form part of the laying flock for next year, or to be condemned to market. Let this work be done as soon as possible, and all such as are decided not to be kept should be separated from the rest, and be pushed into marketable birds as quickly as possible. The sooner they are sold the greater will be the profit on them. All young cockerels should be separated from the pullets, and those intended to be kept for stock birds be given separate quarters, and be fed for perfect development. This does not mean that they should be made fat, but be given sufficient food, such as wheat, bone and meat calculated to build up strong and vigorous frames. The others should be marketed as soon as fat enough. The pullets intended to be kept for winter and spring layers should not be fed so as to become fat, but be encouraged so as to forage for themselves and be given only food rich in protein, such as wheat, oats, bran and bone, and meat scraps. The object in feeding in this way is to build up their frames and not to induce too early laying in the fall. A pullet which begins to lay very early in the fall will almost certainly cease to lay before Christmas and not begin again until the spring, whereas one commencing to lay in October or November will generally lay all through the winter if given proper care and attention. All old hens should be marketed at once before they commence to moult.

Bran is a good food because it contains more mineral matter than the ordinary ground food, and provides the hens with the substances required. It is not proper to feed it every day, however, as it is better to avoid the use of concentrated foods in summer to a certain extent, but a mess of bran three times a week will be found beneficial. To six quarts of bran add one pound of linseed meal, giving a pound of the mixture to twenty hens, allowing no other food during that day. Moisten it slightly and feed at night, just before the fowls go on the roost.—*Poultry Keeper.*

PROPER FOOD.

The natural food for hens is grain, seeds, bugs, worms, and herbs or grass. The nearer we come to this natural diet, the better for the hens. The greater assortment of grain and other foods they have the better, for from these many changes they gain the advantage of having in their system the component parts of each, all of which are needed to carry on the work of producing at least one half their own weight in eggs each month when they are producing as they should. Green food and animal food of some kind must be given them or they will lack two of the most important factors of a proper diet.

FATTENING YOUNG CHICKS.

It is difficult to fatten a young chick because the food goes to growth of body and warmth rather than fat. Chicks cannot be forced before they are about eight weeks old. Experts who fatten them always select the healthy and vigorous ones. They are fed four times a day on the following mixture: Corn meal, two pounds; sifted ground oats, two pounds; bran, one pound; middlings, one-half pound; linseed meal, four ounces; ground bone, four ounces, and common salt, one tablespoonful. Scald the mixture with boiling water and add one pound of crude tallow, stirring well, making the mixture stiff (not wet), and feed in clean troughs, giving as much as the chicks will eat, removing the portions left over.—*Poultry Keeper.*

A teaspoonful of sulphur in a quart of soft food, given the hens on dry days, is one of the best medicines where disease appears, and it is excellent when burned in the poultry house, as the fumes of burning sulphur will not only destroy the lice, but also the germs of the disease. Do not add it to the food during damp weather. As it is cheap, a supply should be kept constantly for use.—*Poultry Keeper.*

KILL THE SICK FOWLS.

No one can afford to harbor sick fowls unless they are very valuable specimens, and even then the chance of recovery or return to usefulness at least is very slim. If allowed to run about, they will spread their disease among the rest of the flock. If placed alone for treatment, the time and money expended for nostrums to cure them are beyond the value of the fowl. Much time and money and anxiety will be saved by ending the life of the ailing one. When dispatched and disposed of, there is no danger of having the troubles spread into the young stock, nor will there be any danger in the future of eating one of its young whose carcass may be infected by disease.

Your houses should have been given a spring cleaning last month, but it is not too late now. June is the month to take all precautions against lice. Clean your drop boards every morning, and kerosene your roosts upper and under side once a week. Kerosene also your nest boxes at least twice a month from now until cold weather, and renew the bedding, that your hens may have sweet, clean nests.

THE COLOR OF YELKS.

When fowls are deprived of green food, the yelks of their eggs are very pale yellow. These are much valued for cake baking Some people have the notion that these pale yelks denote inferior quality, but this is not the case; it simply shows a lack of green food, a full supply of which will soon intensify the color of the same. Again, many think that a blood spot on the yelk is a sure sign of a bad egg. But this is not necessarily so, for at times this spot is deposited upon the yelk from a rupture caused as it passes the oviduct, and is present in the egg when perfectly fresh.

The Horse.

NOTES.

October 22nd to 27th, inclusive, are the dates that have been selected for the forthcoming annual fair and race meeting of the North Carolina Agricultural Society, which will be held at the fair old city of Raleigh, the State capital. The Society has almost reached the fortieth year of its existence, and these fairs and race meetings have become a fixture that serves to attract many thousands of visitors to Raleigh during the week in which they are held. The premium list has recently been revised and larger prizes will be offered for live stock, agricultural and mechanical products, while a more attractive race programme was never issued by the Society. Mr. Charles McNamee, the president, who is connected with famous Biltmore Farms, is widely known as an able and thoroughly informed agriculturist, while Messrs. J. E Pogue, secretary and general manager, and C. B Denson, assistant secretary and treasurer, will direct affairs that lead to the pronounced success of the big fair of 1899. The management are putting forth the strongest efforts to make the fair this fall a big success, and the outlook is all that could be asked for. As usual, the race programme promises to be one of the most attractive features, and a larger amount of money will be offered in purses. This department is in charge of Mr. W. C. McMackin, as for several years past, and the purses offered for trotters, pacers and runners range from $100 to $300 each, the latter being offered for the 2:18 class, trotting and pacing, which will be decided on Thursday, the big day of the fair.

During the week following the State Fair at Raleigh will be held the annual fair and race meeting of the Piedmont Fair Association at Winston, which is one of the busiest and most progressive cities in the Old North State. Secretary G. E. Webb, of the Piedmont Fair Association, is imbued with a spirit of energy and progress, and under his management the fair of 1899 at Winston was a grand success, and the forthcoming one will be conducted on a much larger scale. Liberal premiums and prizes will be offered for live stock, agricultural and mechanical products, while an attractive race programme has been prepared. As at Raleigh purses of sufficient size will be offered to attract good horses, interesting contests may be expected in the different classes for trotters, pacers and runners.

One of the most consistent performers out so far is the big bay gelding Rustler, owned by E. D. Christian, Jr., of this city, who commenced the season a green horse, making his first start at the spring meeting of the Gentlemen's Driving Park, Baltimore, where he won a couple of races, and was victorious in two more at Prospect Park, Baltimore, during the following week, winning in straight heats and trotting to a record of 2:22¼, which would have been several seconds faster had there have been anything to force him out. Rustler has been trained and driven by C. A. Pusey, who in years past has had out such good ones as Mosul, 2:09¼; Firewood, 2:17¼, and others. This son of Hustler Russell, 2:12¼, and Lady Pilot, Pilot Mambrino, who was bred by W. E. McAfee, Shelby City, Ky., and is now six years old, was fast as a yearling and even more promising at two years old, but went wrong, and until the beginning of the present season was driven on the road. If the gelding keeps right he should trot in 2:15 before the close of the present season.

The 1900 crop of thoroughbred yearlings from the Ellerslie Stud, Charlottesville, Va., the property of R. J. Hancock & Son, were sold in the American Horse Exchange paddocks, Sheepshead Bay, New York, on Monday, June 21st, when eighteen head were disposed of for $4,760, an average of $264.44 per head, which was not satisfactory, as higher prices should have ruled considering the quality of the stock offered. The Charaxus Ethie colt brought the top price of $1,800, while more money was expected for the filly by Charaxus, out of Ada Belle, a full sister to Charade, and Mabelle, but P. M. Civill got her for $525. The bay colt by Charaxus, out of Ninone, fell to J. J. McCafferty's bid of $400, while R. Baker got the chestnut colt by Eon, out of Vigilance, for $225, but W. Lakeland had to put up $300 for the black colt by Charaxus, out of Helmwind. A chestnut filly by Eon, out of Mermaid, the dam of Merry Day and Eonic, went to H. D. Brown for $325, while others fell to various bidders at lower figures.

Mr. T. O Sandy, of the Grove Farm, Burkeville, Va., reports a prosperous season, and states that numerous sales of Holstein cattle, hogs and poultry have been made at satisfactory prices, while his imported hackney stallion, the Duke, has been liberally patronized by farmers and others in that section, and in some instances by breeders from a distance. The Duke is stoutly made, of very handsome proportions, and one of the best tempered, most cheerful driving horses to be found anywhere. Among the mares bred to this good looking son of Silver Star during the present season were Berdena, a fine looking bay mare by Marathon, a son of the great show horse King Rene, dam Duster by Golddust, and Lady Rodes, a bloodlike, handsome daughter of Netherland from a mare by General Hatch, second dam by imported Consternation, third dam the famous Rodes mare, who produced the noted Lady Thorne, 2:18; Mambrino Patchen, the great broodmare sire, and Kentucky Clay.

BROAD ROCK.

The Orange (Va.) Horseman's Association will hold the third annual horse show at Orange, Va., on Thursday and Friday, August 2d and 3d, when valuable prizes will be offered for thoroughbred, standard breds, heavy draught, roadsters, hunters, hackneys, and saddlers. The Hon. C. C. Taliaferro, of Orange, is president of the Society, and Dr. Frank B Perry secretary and treasurer. Entries must be made before 28th of July.

Miscellaneous.

PROPOSED TOBACCO EXPERIMENT STATION AND MODEL FARM.

In our last issue we published an open letter to the State Board of Agriculture of Virginia from Major R. V. Gaines, of Charlotte Co., in which he urged upon the Board the necessity for the immediate establishment of a Tobacco Experiment Station in Southside Virginia. It affords us the greatest pleasure to give our support to this proposition, whilst not committing ourselves to the details of the plan suggested. We have repeatedly urged in years gone by that justice to the tobacco growers and the truckers of Tidewater Virginia demanded the provision of an experiment station in the tobacco and trucking sections of this State. From no fault of the Experiment Station at Blacksburg, or of its able Director, that Station can do nothing to help either the tobacco grower or the Tidewater trucker. The location of the Station, on the mountains of Southwest Virginia, absolutely precludes it from doing work in these lines. The necessity, therefore, for the establishment of another Station must be conceded if the same help is to be extended to the tobacco growers and truckers which is already extended to farmers engaged in other lines of agricultural production. Justice also demands this, and demands it at the hands of the State Board of Agriculture. The funds provided for the maintenance of the State Board of Agriculture and for the development of its work and the extension of its usefulness to the farmers of the State are raised by the tax upon fertilizers. To this fund there are no greater contributors than the tobacco-growers and truckers They are the men who use by far the largest part of the fertilizer sold in the State, and they have a paramount claim to any surplus beyond what is absolutely required for the carrying on of the work of the department devoted to the advancement of their interests, and this seems to have been recognized by the Legislature in the statute lately passed. That there is a great work to be done in carrying on experiments in tobacco growing and curing has been recognized by the special provision recently made by the Secretary of Agriculture for the carrying on of work in these lines. It is a fact that examination of the records will bear out that considering the value of the tobacco industry to the nation and to the States less scientific work has been done in connection with that industry than in that of any other branch of agricultural industry. We most earnestly beg of the Board that they will take up this question at once and devise ways and means for carrying it into execution. One thing is certain, that to be of permanent value it must be put under the supervision and direction of a scientist of recognized ability. No amateur work will meet the needs of the case. In our opinion, it would be well to have it placed under the direction of Dr. McBryde, the Director of the Blacksburg Station, who would be able to give the Station the advantage, not only of his ability and long experience, but of the help of the National provision for experiment stations, and thus lighten the cost to the State. We would urge the farmers of the State, and especially the tobacco and truck growers, to give this project their help, and to impress upon the members of the Board the importance of helping these two industries in the way suggested.

VIRGINIA POLYTECHNIC INSTITUTE.

State Agricultural and Mechanical College.

Availing ourselves of the opportunity of a day or two's rest, we took a trip to the Commencement exercises of this college, and feel that we should fail in our duty to the college and to the people of the State did we not, at the first opportunity, avail ourselves of what we then saw and learnt, to commend the work done at the college, and to ask for it the liberal support and patronage of all our people, and especially of the farmers of the State. Since Dr. McBryde took charge of the college, a complete revolution has been worked. From being poorly patronized by the people of the State, and having only a small reputation as a seat of learning for the technical training of the young men of the State, it has come to be realized that it is one of the greatest and most successful technical colleges in the South, and, with this realization, has come the necessity for constant enlargement of the accommodation for students, both in the way of barrack room and of shops for the practical prosecution of the actual work incidental to the course of studies to be followed. Fortunately, the Legislature of the State has had the wisdom to appreciate the value of the work being done at the college, and has made appropriations to meet the needs of the Institution. As a result, the college now has probably the finest equipment of shops, tools, and appliances, of any Institution of learning in the South, and is on a par with some of the best of the Northern colleges. This applies not only to the mechanical but to the agricultural departments of the college. Coincident with this enlargement of the practical needs of the college, Dr. McBryde and the Board of Visitors have made it a point to secure a faculty adequate to the needs of the place. This comprises a staff of professors and assistants in all branches

of engineering, chemistry and agricultural economics, and the courses of study are so laid out that no student who will avail himself of the facilities offered can fail to leave the college fitted for his life's work in all that should make success a certainty. We were delighted to see how fully the students appeared to appreciate the advantages offered them, and with what pleasure and pride they recognized the work of Dr. McBryde and the whole faculty. There was only one tinge of sadness connected with our visit, and that was occasioned by the fact that amongst the class of graduates of something like thirty students, all fine intelligent looking young men, and all fortunately equipped with that special learning which the South so greatly needs to develop its marvellous resources, there was only one student who graduated in the agricultural course. This is not as it should be. Whilst we need, and need badly, all the civil, electrical and mechanical engineers with which the college can supply us, we need also, and need still more badly, all the scientifically trained farmers and horticulturists which it can supply. Until we secure upon our farms men of this class, we cannot expect to make that headway in agriculture in all its phases which modern requirements call for. Farmers in the South, unfortunately, do not realize yet what openings there are for the utilization of science on the farm. Prof. Henry, of the Wisconsin College of Agriculture, wrote recently that he had applicants for men to fill positions on farms who had had scientific training at the college, largely in excess of his ability to supply them, and at salaries as good as those paid young men in other walks of life. This will be the case all over the country shortly, and we hope to see Virginia farmers' sons competing for these positions or scientifically managing their own farms. They cannot do so unless properly trained. At Blacksburg this training can be given them, and we would urge that it be availed of and that the graduating class every year shall at least have a fair proportion of men who have taken the agricultural course. "Agriculture is the nursing mother of the arts and the sciences," and is the noblest calling to which man can aspire.

TIDEWATER NOTES.

Editor Southern Planter:

Why do so many Virginians stick to tobacco raising? It is not now considered and used as currency as it used to be when the salaries of public officials and ministers of the Gospel were paid in tobacco. The old bachelors need not raise it thinking to buy a wife with it as they did in 1620, when for 120 lbs. of good Virginia tobacco a man could buy a good wife.

The tobacco then was worth sixty six and two-thirds cents per pound. This is the only case I remember of hearing or knowing about of arriving at a *cash* value or *tobacco* value placed on the fair sex. Here it is: A woman in one scale and 120 lbs. of tobacco worth $80 in the other. It would be a pretty scrubby sort of a wife a bachelor could purchase nowadays with 120 lbs. of Virginia tobacco at present prices.

He had best, therefore, turn his attention to sheep or pigs, or even goats or poultry, if rightly located. If near his market, he can profitably make milk for the retail market. It will sell in most any city in Virginia for six to eight cents per quart. If farther away from the market, then he can make butter as cheaply as at the North or West, and get more for it here than there.

Tobacco growing plays mischief with the soil, robbing it of its fertility; and the tobacco, also, plays mischief with the muscles and mental ability and nerves of the youth of our country. It is a hard crop; hard on the soil and hard on the user.

What Virginia soil needs is more legumes, more cows, more peas, and more cow-peas. Our truckers should let their truck lands rest; or, what is better still, set them the task of growing three to five tons of clover hay to the acre per annum. This the trucking land will do.

The Virginia farmer must diversify and multiply his crops. It must not be all corn, all cotton, all tobacco, or all truck.

We are just through our great strawberry harvest. There are hundreds of two-year old berry fields which, if left alone, would another year, and even later on this year, yield a big cutting of clover—the only trouble being to cut it on account of the ridges on which the berries are planted.

Nature is doing her very best to teach our truckers new tricks, but the truckers seem to prefer to buy nitrogen in sacks with shekels rather than save it up from the air with leguminous crops. It looks bad to see so much land lying idle and unproductive. As a rule, many of our farmers are good local politicians, but very poor students of political economy.

Eastern Virginia is surely a fine field for sheep, cattle, poultry and pigs. Much of it is also good for grass and grain. All of it is good for one or more of the crops which we now buy in immense quantities from sections 1,500 to 2,000 miles away. I recently bought a pound of first class butter for 23 cents. This butter was made away up in Wisconsin.

I never knew of our butter makers here selling a good article of butter for less than 25 cents, while much of it is sold for 30 to 40 cents per pound. The Wisconsin man makes his butter from land costing much more, probably, than our Virginia land—makes

it in a shorter growing season; then he has a long winter and a lean, short, stingy summer, while we have a long growing season and a very short, mild winter; and then he must pay the freight and pay for the packages, and he is lucky if he gets 12½ or 15 cents per pound net for his most excellent butter.

Mixed farming pays here in Eastern Virginia near the sea—near the great markets. It will pay all over the South. Let our people intelligently try it.

Norfolk, Va. A. JEFFERS.

PROPOSED TOBACCO EXPERIMENT STATION AND MODEL FARM.

Editor Southern Planter:

I have read with interest the open letter of Major R. V. Gaines to the State Board of Agriculture in the last issue of the *Planter*.

I do not care to discuss the subject in advance of the next meeting of the Board, but I promise to bring the matter up, and it shall have that careful consideration which is due both on account of the author and the important matter suggested.

On behalf of the Board, I will say that we are always glad of any plans or suggestions given with a view to aiding and advancing the material interests of Virginia, and particularly everything connected with its agricultural welfare. I take this occasion to say that I believe the Board, together with the Commissioner of Agriculture, is now doing good, and will do more in the future.

But if, for any reason—either of indifference or incapacity—the Board fails to do this, and reorganization of the Department of Agriculture should be demanded, I think it would be in order for the members of the State Board to be paid for their services just as they are in other departments of State. Here is a Board of which so much is expected, and at whose disposal there will probably be $30,000 or more to disburse, and whose members serve the State free.

The farmers of Virginia (who pay so largely the taxes) ought not to allow such a service, nor ever complain if it is indifferent.

JULIAN M. RUFFIN,
President State Board of Agriculture.

THE FAILING OF FARMERS.

Editor Southern Planter:

In the June number, page 322, Mr. James B. Hunnicut has an article on the subject of wheat hay. I will say that, for feed, it is superior to any timothy or other hay. I sowed my wheat mixed with crimson clover. I cut it early in May while the wheat was in the dough state, and cured it well before housing. I feed nothing else—no corn, oats, or other grain. My horses can be seen working every day. They are in good condition. Now that Mr. Hunnicut has pointed the way, shall we follow it, or will we continue to be the "men with the hoe" only? He shows that, as wheat, it is worth $10 per acre; as hay, it is worth $30. "This is getting down to business," and it is because farmers neglect to take businesslike courses that they are so poor in nine cases out of ten. In other words, so long as we use our muscle only, we will remain to the end the "man with the hoe." But when we make use of our brains along with our muscle, then we shall begin to advance. There is no earthly reason why farmers should not be the cream of the earth if they will only use their brains. When the farmer begins to study and learn the "hows" and "reasons why," then he will begin to emancipate himself from being merely "a man with the hoe" to being a man with money power. Farmers are enriching every other class of men and every day becoming poorer themselves, simply because they do not make use of their brains. Almost everything we raise on a farm becomes valuable only after some one else gets possession of it. Well, we have but ourselves to blame. We are simply made a cat's paw by others to pull the chestnuts out of the fire.

Are we to remain in this condition? Mr. Hunnicut, for one, is not, that is certain. Farming is God's own calling. We must go on increasing production and finding new uses for it, and so get more out of it. We must either advance or fall back and fail in the purposes for which God created us. We are in need of emancipation from many things, and especially from working without thinking. There is nothing wrong with the land; we can make it just what we want to, and can raise almost anything we choose to. Will we do it? If so, then the next thing is to make the best out of it possible. Farmers are the only class of laboring men I know who are kept poor by their own ignorance. Even the coal miners make more money than we do and do less work, and yet many farmers are men of fine education—many have had college educations—and yet can't make anything farming. They remain on the farm simply in "the man with the hoe" condition, never once putting to work the same brain powers they would have to use in any other profession in order to succeed. Whenever the farmer begins to use his brain along with his muscle, then he will take his place among and above all other professions. Wheat is not the only thing we are wasting. Almost everything we raise would net us double what it does if properly utilized. It should be our business to find out the "how." Will we do it?

Nottoway Co., Va. H.

OLD SOUTH STATE.

Editor Southern Planter:

A careful study and comparison of conditions of soil and climates shows me that the most favorably situated lands for modern, intelligent, intensive methods in agriculture are those of the flat, "mulatto, isin glass" lands of the East Coast from Savannah river to Norfolk; the best located, best conditioned, and best adapted to produce abundant crops of present desirable articles of food for men and animals, and raw material of manufactures. The best located, because of a very gentle slope to the South and East, protected to a large extent by the mountains, which ward the cold waves to the northward, but do not prevent the occurrence of timely rains so far South and under the influence of tropical temperatures as to render very little artificial warming necessary. So well conditioned from the warm, sandy nature of the soil, so flat as to readily hold fertility and moisture, and so well adapted by character of soil and level condition that the land is uniform in character, and can be cultivated at a minimum of expense and the fertility kept up.

All the discoveries of advantages in particular crops of vegetables or cereals are especially directed to these lands, all the more modern, more scientific and exact methods of culture are especially aimed at and applicable, while all the labor saving systems and modern appliances seem to have been especially perfected for use here.

A system of irrigation adapted to all farm work is the grand new birth near at hand, but until its entrance no climate and no soil conditions are better prepared to grow crops to perfection than these flat lands, and those of the Old South State in particular.

To enter into particulars, we find every crop grown in the North growing quicker and in greater perfection and adapted to a rotation admitting of the growth of three crops a year in South Carolina against one in Illinois.

Wheat planted in October and November yields equally with wheat at the North, while the crop is taken off early enough to be followed by corn, potatoes, peas, etc. Oats may be grown in winter, or spring rye and barley as winter crops, corn (early and late), potatoes (early and late), two crops, while every other crop in the list of farm products—broomcorn, hemp, buckwheat, and especially every article of garden truck and vegetable luxury, flourish in the highest degree. The most noted asparagus gardens in the world; the earliest peas, beans, cabbage, beets, cauliflower, celery the year round, melons.; in fact, there is no part of the world better adapted to a perfect character of product, while the climate is of the kind that farm and garden work are continuous the year round. Much of the land lies low, but its great fertility and perfect adaptation to hold both moisture and fertility warrants the outlay of all the expense of dyking and ditching. Both of these are eminently practicable. Upon these first bottoms the largest crops are grown, and especially in dry seasons are the advantages of these lands apparent. The second bottoms, which is the character of a very large part of the lands of South Carolina, are especially well adapted to all farm and garden crops where it is desirable to do a good part of the work in autumn and early spring.

The same intelligence displayed in adapting crops to soils and climatic conditions in the North will here reap double reward.

New York. S. S. BOYCE.

A TOBACCO EXPERIMENT STATION AND MODEL FARM.

An Open Letter to the State Board of Agriculture.

[No. 2.]

To the Hon. State Board of Agriculture of Virginia:

The subject of my former letter has elicited great interest in agricultural circles in the State, and I find from letters received on the subject that some misapprehensions prevail.

It is not my idea that the *Experiment Station and Model Farm*, to be established by the State Board of Agriculture, shall be devoted exclusively to the tobacco interest, but only that it shall be located in the tobacco belt, and that tobacco shall be primary. Nor do I propose to involve the Station in any fight the planters may have with the trust, or to make it a part of the political machinery of the State, a mistake which killed the Grange and Alliance organizations in Virginia.

The Co operative Unions will be distinct from the Experiment Station, and all other organizations in the State, and will be supported entirely by the private contributions of its membership; but it is contemplated to give the Association of Tobacco Unions a voice in the election of the Board of Control, and in mapping out the work through its Executive Committee in conjunction with the Board.

I have written the Attorney-General for his opinion of the powers and duties of the State Board in the premises; he is now engaged in its preparation; I had hoped to have it in time for your issue, as the Board will meet before another paper comes out, and will, I assume, take this subject up.

As germain to it, however, it is proper that I should remind you of the work done along this line when I was a member of the State Board of Agriculture.

A SCRAP OF HISTORY.

You will recollect, Mr. Editor, that time and time again I brought this subject to the attention of the State Board. For three years I labored to effect the co operation of the Experiment Station at Blacksburg

with the State Board of Agriculture in the establishment of subsidiary or outlying Stations one of which I wanted in the Tobacco Belt, to be devoted to that interest. But the difficulties which surrounded the subject, in the way of legislation and means, seemed so insurmountable that the matter was finally pushed aside for another scheme.

Finding that the authorities at Washington were willing to co operate with us along this line, I induced the Board to go to Washington and confer with the Secretary of Agriculture and the heads of the different departments. We met with a cordial reception and assurances of hearty support in our work. Professor Milton Whitney, Chief of the Division of Soil Investigations, proffered his services, if we would only pay the necessary expenses of the work.

The Board appropriated $1,000 for this purpose, a member of his staff was detailed for the purpose, and, after a year's investigations, a tentative soil map was prepared.

Following in the line of his suggestions, in order to give our planters and farmers the practical benefits to be derived from the appropriations made by Congress for this purpose, and the researches and investigations of the Department of Agriculture at Washington, the Board authorized the Committee on Analytical and Agricultural Chemistry, of which the writer was chairman, to inaugurate a system of "*Soil Test Experiments*" in the four principal formations of the State.

Though this work was conducted without the neces sary means of making strictly scientific tests, the result was, nevertheless, highly interesting and instructive. Had these experiments been continued, the results would have proved of great value to the agriculture of the State.

Experiments were made in Hanover, James City, Charlotte and Pittsylvania—corn, trucks, dark and bright tobacco. While $500 was appropriated for this purpose, a small portion only of which was expended, it was found impossible to get the Board sufficiently interested in the subject to give the attention necessary. In fact, it was found impracticable to carry on these experiments with the means and appliances at the command of the Board; and as it required a great deal of extra labor and responsibility, for which there was no compensation provided, the work was abandoned without even publishing my report.

If Mr. Koiner will look among the Archives of the Department and hunt that report up and give it to you for publication; I think you will find it worthy a place in your columns, certainly as a starting point for our new Experiment Station.

By the way, Dr. Kilgore, State Chemist of North Carolina, writes me that the quotation I made from the act, approved 29th December, is copied from the decision of Judge Seymour in the Fertilizer case, which was afterward carried up to the Supreme Court of the United States, and reviewed by Chief Justice Fuller.

IN CONCLUSION.

I claim that the language of the law is imperative, *vide* section 7, page 4, viz., "Any surplus of said funds shall be used by the Board for carrying on ex periments in the nutrition and growth of plants, with a view to ascertain what fertilizers are best suited to the various crops of the State," &c. If this does not imply the establishment of an Experiment Station, what does it mean? The former Board, as I have shown, undertook to carry on these experiments without any specific authority, so impressed was it with the necessity. Up to this act, the legislation of the State has fallen short of the exigencies of agriculture in regulating the control of the fertilizer trade. To inspect samples, analyze and publish, as has been done up to this time, does keep out interlopers and protect the honest manufacturer in his business, but it only gives the farmer the *commercial value* of what he buys. The Analyses and Bulletin, published by the Commissioner, informs the farmer whether the goods come up to the guarantee in nitrogen, potash, and phosphoric acid, and what that amount was worth at the Seaboard when the Association of Chemists met and found the value.

But how does the farmer know whether the fertilizer contains the elements that his crop or his lands need, and in the proportion wanted. He must proceed to experiment by applying the fertilizer to his crop in the soil; but he has no means of ascertaining how much is due to each of the elements contained or all combined—how much to the season, to the cultivation, or what unknown causes may operate to control the result. So that without an Experiment Station to carry on these experiments the planter is left wholly in the dark and the Department of Agriculture has fallen short of the requirements of the law.

How important and significant is this fact, when we consider that $5,000,000 is expended annually in fertilizers by the Virginia farmers, and that they are now forced to adopt the intensive system, and use more and more every year? What else can the law mean?

RICH'D V. GAINES.

Mossingford, June 23, 1900.

THE LATE A. P. ROWE, FREDERICKSBURG, VA.

We regret to have to chronicle the death of one of our oldest subscribers and one of the oldest breeders of pure-bred live stock in the South—the Hon. A. P. Rowe, Mayor of Fredericksburg. He died on the 31st of May, and was interred on the 2d of June. He had reached more than the allotted span of life—being 83 years of age—yet was active in the discharge of his duties as Mayor of the city to the last. He had filled many positions of honor in his community—having been a member of the Legislature, of the City Council, and President of the Agricultural Society. In all these he measured up to the highest standard. As a breeder of Jerseys and Berkshire hogs, he was known throughout the South—his herds having won premiums at all the leading fairs for years. We tender our sympathy to his family.

A CHANCE FOR THE BIRDS AT LAST.

The most important measure ever introduced in Congress in the interest of game and bird protection passed the Senate unanimously on the 18th instant. It had previously passed the House with only twenty-three negative votes. I refer to what is known as the Lacey bird bill. This was introduced in the House by the Hon. John F. Lacey, of Iowa, early in the session, and he has worked like a Trojan for it ever since. This League has also done stalwart work in the interest of the measure. Our 3,000 members, distributed throughout the entire United States, have written and caused to be written thousands of letters to the members of the House and the Senate, imploring them to support the bill. Furthermore, our members have caused thousands of business men and farmers to write similar letters. It is safe to say that no measure introduced in Congress in the last ten years has created so much popular interest all over the country, or has caused so great a flood of petitions from the people as the Lacey bill has. It is entirely conservative to estimate that more than 10,000 letters have been delivered in the capitol building within the past four months, praying for the success of Lacey's bill.

And the people's representatives have responded nobly. The millinery interests made a desperate fight against the measure, but we have won a glorious victory over them, and the result will soon be seen in a rapid increase of birds and game animals throughout the whole country.

No more shipping of prairie chickens from Minnesota to Chicago or New York, labeled "poultry." No more shipping of venison from Wisconsin or Michigan to Chicago or New York, labeled "veal" or "mutton"; no more shipping of quail from Kansas, Texas, Oklahoma or the Indian Territory to Chicago, New York, Boston, or Philadelphia, labeled "eggs," or anything else.

No more shipping of bird skins from Florida, Alabama, Louisiana or any other State to New York or elsewhere, labeled anything else than what they really are.

No more contracting for 20,000 birds to be slaughtered in Maryland, to be shipped to New York; no more slaughtering of sea gulls on the New England coast or elsewhere, in violation of the laws of any State, and shipping them to millinery bird hogs in New York, no matter how labeled.

Here are the provisions of the bill:

The first section enlarges the duties and powers of the Agricultural Department to include the preservation, distribution, introduction and restoration of game birds and other wild birds. The Secretary of Agriculture is authorized to purchase such game and other wild birds, or their eggs, as may be required therefor, to propagate and distribute them over depleted areas where it may be possible for such birds to exist and thrive. For instance, prairie chickens may be imported from Nebraska and liberated in the Shenandoah Valley in Virginia, where, it is believed, they would prosper. The Department would, in all such cases, prescribe rules prohibiting the killing of such birds from five to ten years, and the mere fact that the birds belong to Uncle Sam would inspire every man and boy with a wholesome respect for them. It is a well known fact that where game birds are liberated by wealthy clubs many farmers' boys take a fiendish delight in killing them off, but not so with birds known to be government wards.

The second section of the Lacey bill prohibits the importation into the United States of any foreign wild animal or birds, except under special permit from the Department of Agriculture. Special prohibition is laid upon the mongoose, the flying foxes, the starling, and other wild birds known to be injurious to agriculture and horticulture. If we had had such a law as this thirty years ago, the English sparrow would not to day have been a public nuisance to the whole country.

The third section of the Lacey bill prohibits any common carrier from transporting from one State or territory to another the dead bodies, or parts thereof, of any wild animals or birds killed in violation of the laws of the State or territory in which the same were killed.

Section 4 provides that "all packages containing such dead animals, birds, or parts thereof, when shipped by interstate commerce, as provided by section 1 of this act, shall be plainly and clearly marked, so that the name and address of the shipper, and the nature of the contents, may be readily ascertained on inspection of the outside of such packages."

Heavy penalties are provided for violations of either of these provisions.

Section 5 is specially important as regulating the traffic in foreign game, which is now being carried on in New York and other large cities, and which enables any unscrupulous game dealer, or hotel man or restaurant man, to maintain a fence for the handling and sale of American game, killed or had in possession in violation of local laws.

Section 5 further provides "That all dead bodies or parts thereof of any wild game animals, or game or song birds, transported into any State or territory, or remaining therein for use, consumption, sale or storage therein, shall, upon arrival in such State or territory, be subject to the operation and effect of the laws of such State or territory, enacted in the exercise of its police powers, to the same extent and in the same manner as though such animals or birds had been produced in such State or territory, and shall not be exempt therefrom by reason of being introduced therein in original packages or otherwise."

The passage of the Lacey bill means a gain of hundreds of millions of dollars to the agricultural interests of this country within the next twenty years; and the farmers will be proportionately indebted—1st, to the Hon. John F. Lacey for his heroic work; and 2d, to this League for having made known to the Senators and Representatives the will of the people at large and of the farming interests concerning this bill.

And now, Mr. Editor, may I add that it is the duty of every farmer, and, in fact, of every man in the United States, no matter what his occupation, who is a friend of the birds, or who is interested in any way in the preservation of game, or in the study of nature, to join this League. Its office is at 23 West 24th street, New York.

G. O. SHIELDS,
President League of American Sportsmen.

[We rejoice to be able to publish this in the interest of the preservation of the birds—the farmers' best friends.—ED.]

THE

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Always give the Name of the Post Office to which your paper is sent. Your name cannot be found on our books unless this is done.

The Date on your Label shows to what time your subscription is paid.

Subscribers failing to receive their paper promptly and regularly, will confer a favor by reporting the fact at once.

We invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles. Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,
RICHMOND, VA.

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PUBLISHERS' NOTES.

To Our Readers.

After the press of haymaking and wheat harvest is over there is usually a period of comparative leisure on the farm which is most acceptable at this hot period of the year. This leisure time is usually given up to visiting one's friends or the resorts in the mountains. Such a time gives to those who are reading the *Planter* the opportunity to help us by bringing the journal to the notice of those who may be met on the visits. We would ask that this opportunity be not lost but that a few copies of the *Planter* be put in the grip and be taken along to be handed to friends and acquaintances with the expression of a wish that they become subscribers. What helps us in this way helps every subscriber to the journal. The wider and larger our circulation becomes the wider the area from which we draw our information and experience notes, and the more valuable the journal becomes to its readers. There are still thousands who do not read the *Planter* who would do so if only urged by a friend in whose judgment they have confidence. Be this friend, and thus help both us and yourself. In this issue will be found a few testimonials from amongst those received daily. They come to us unsought and unasked, but they are none the less appreciated. They say more for the Journal than we would venture to do.

PUBLIC SALE AT "HILL TOP," STAUNTON, VA.

We call the attention of our readers to the advertisement of H. A. S. Hamilton & Co., to be found elsewhere in this issue. In our May issue, they advertised to sell stock privately until date of sale, but decided afterwards to hold everything until the Public Sale on July 24th. Inadvertently, they failed to change their advertisement in our June issue, we being on press when copy reached us. Messrs. Hamilton advise us that they are holding everything for the "hammer," on the 24th of this month, and everything promises a successful sale. Send for their catalogue.

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If your Merchant does not sell **Wood's Seeds**, write to us for special Price-List. Our aim is to grow and supply Seeds that are adapted in kind, variety and growth to the soil and climate of the South, and that we are succeeding is evidenced by the large sale and splendid reputation which **Wood's Seeds** enjoy.

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LUCAS COUNTY, }

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Sworn to before me and subscribed in my presence this 6th day of December, A. D. 1886.

{ SEAL. } A. W. GLEASON, Notary Public.

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"Ellwood" fences are sold by agents everywhere; thousands of dealers throughout the country are able to supply the fence in any quantity, but as it is possible some towns have not yet secured an agency, our readers are requested, in case of inability to find an agent, to write for full particulars to the American Steel and Wire Co., The Rookery, Chicago, Ill., or Empire Building, New York.

A few weeks after shearing, do not neglect to dip both the sheep and lambs in one of the reputable dips. The practice of dipping is most general where sheep raising is longest established, a fact which proves its benefits. The Cooper Sheep Dip has a world wide record of sixty years' standing, and it is used on no less than 175 million sheep every year.

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Is one of the most charming summer resorts reached via the Chicago, Milwaukee & St. Paul Railway.

Its healthful location, beautiful scenery, good hotels, and complete immunity from hay fever, make a summer outing at Marquette, Mich., very attractive from the standpoint of health, rest, and comfort.

For a copy of "The Lake Superior Country," containing a description of Marquette and the copper country, address with four (4) cents in stamps to pay postage, Geo. H. Heafford, General Passenger Agent, Chicago, Ill.

WORDS OF PRAISE FOR THE SOUTHERN PLANTER.

It is very gratifying to us to know the *Southern Planter* is so highly appreciated by its readers throughout this country, and also in foreign countries. The Department of Agriculture of the Bermuda Islands subscribes for a number of copies yearly, and this, too, after having carefully examined other papers. Of course, we appreciate the distinction. Below we give extracts from subscriber's letters received within the past month.

Stockton, Md.—I am constrained to say that of all the agricultural journals I have read, and they foot up quite a goodly number, not one, in point of merit and excellence, measures up to the standard of the *Southern Planter*. I consider it a serious loss to be deprived of a single number. J. T. Parker, M. D.

Tartora, Ga.—The *Southern Planter* is the finest farm journal I have ever seen. W. W. King.

Washington, N. C.—Please renew my subscription. I don't want to miss a month, as I am sure I would be lost without the *Southern Planter*. F. A. Moss.

Louisa, Ky.—I am bound to read the *Southern Planter* and sow cow-peas or quit farming. Jay H. Northup.

Unionville, O.—I could not get along without the *Southern Planter*. Eugene Watrous.

Baie, St. Paul, Quebec.—I just wish to tell you that as long as I live I will be a subscriber to the *Southern Planter*. Chs. Bellerive.

South Boston, Va.—It is needless for me to tell you that the price of the *Southern Planter* is but a song considering the amount of practical information readers derive from its columns. H. L. Edmunds.

THE TOP-NOTCH FARMER.

The top-notch farmer never lacks for plenty of good food for man and beast. He never sells hay from the farm, preferring rather to feed it all out on the place. His granary contains stuff enough to carry his horses, cows and sheep safely through the longest winter. If he must buy anything in the line of feed he does so at the season when it may be had at the best advantage. He is not buying bran in the winter time or meal in the spring. He has seen to it that his bins are well supplied in August or September. His cows are not vainly trying to find shelter on the leeward side of a fence when the wind is blowing a hurricane and the mercury is hunting for the bottom of the thermometer. They are all snug in the barn, chewing their cuds and thanking their owner for his consideration, and showing their thankfulness by good returns at milking time.

The top-notch farmer has his work done on time. If any chasing is to be done, he does the chasing. Pity the farmer whose work keeps him on the run from y ar's end to year's end! The top-notch farmer finishes his day's work before dark, and so has time to sit down and find out what has been going on in the world around him before bedtime. Sowing, reaping, everything is done when it ought to be.

"A Small Spark Makes a Great Fire."

A small disease germ in the blood develops, multiplies and increases until the whole life stream is poisoned and diseased. The result is scrofula, catarrh, a broken down system. You may prevent this disaster by taking Hood's Sarsaparilla, the great purifier and vitalizer of the blood.

Consumption — *"After the grip I had a bad cough, dizziness and night sweats. Humor broke out and consumption was diagnosed. One bottle Hood's Sarsaparilla helped me and four bottles cured me perfectly."* *Mrs. N. D. Kinney, Morris, Conn.*

Hood's Sarsaparilla

Never Disappoints



To Repair Broken Articles use

Major's Cement

Remember MAJOR'S RUBBER CEMENT, MAJOR'S LEATHER CEMENT.

SAN JOSE SCALE and other insects can be controlled by using

Good's Caustic Potash Whale Oil Soap, No. 3.

It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, $2.50; 100 lb. kegs, $4.50. Half barrels, 270 lbs., at 3½c. per lb.; barrels, 425 lbs., at 3½c. Large quantities, special rates. Send for circular.

JAMES GOOD,
939-41 N. Front St., PHILADELPHIA, PA.

Keeley Cure

For Drunkenness and Drug Using.

Please write us. Correspondence confidential.

Our Illustrated Handbook Sent Free On Request.

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$1.00 PER TON.

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REEVES CATT, Agt., Bodley, Augusta Co., Va.

Also No. 1 Rock Lime for building. Send for card with price-list.

WE PAY $18 A WEEK and expenses to men with rigs to introduce our Poultry Compound. Send stamp. Javelle Mfg. Co., Dept. 107, Parsons, Kas.

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RAKE SEPARATOR



Lightest draught; most durable, perfect in operation and cheapest.

Farquhar Vibrator Separator

greatest capacity; wastes no grain, cleans ready for market. Specially adapted for merchant threshing and large crops. Threshes rice, flax and millet. Awards at three world's fairs.



FARQUHAR
Celebrated Ajax Engine

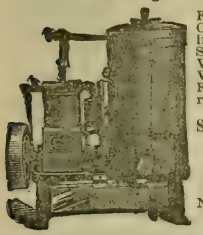


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No Skilled Engineer required.

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Runs 24 hours a day and 365 days a year.

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EXPERT Seneca Falls, N. Y.

4 **Buggy Wheels with tire on, $7.25. With Axles Welded and Set, $11.00,**



I make all sizes and grades with steel or rubber tire. Send for catalogue giving prices on wheels 3/4 to 1 in. tread, with instructions for ordering. Rubber tire buggies, $65. Buggy tops, $5 90. Special grade wheels for repair work, $5.50. If you write to-day.

W. V. BOOB, Centre Hall, Pa.

PAINT TALKS XXIX.

Paint Does Not Always Protect.

It has been very clearly shown by the experiments of paint experts that a paint may be apparently quite sound and in perfect condition, and yet allow moisture to penetrate through it to the underlying surface. In other words, a coating of paint may entirely conceal a surface, yet be permeable by the very element against which it is intended to guard.

Every one is familiar with the action of the common stone filter. Here we have a substance sufficiently firm for use, if necessary, as a building stone, yet water percolates through it easily and rapidly. A coat of paint may and often does present an analogous condition.

Exhaustive experiments made under the auspices of the United States Navy have shown that paints will protect iron or steel plates against rusting in various degrees, some of them allowing the moisture to penetrate almost immediately, and others excluding it for a long time. The results showed zinc white to be among the very best of the pigments tried, for excluding moisture.

A rough and ready guide to the comparative values of paints in this respect is the length of time they retain their gloss. A paint that has lost its lustre will absorb rather then exclude moisture, and such paint has lost what protective value it originally had.

The practical deduction to be drawn from these facts is that white lead, uncombined with other pigments, does not afford good protection for the underlying surface, and that the addition of a liberal quantity of zinc white vastly improves its powers of resistance.

This is the reason why all paint manufacturers, when they endeavor to produce the most enduring paints, turn out combinations containing zinc white, on which they rely for the important qualities of impermeability and durability.

Stanton Dudley.

WRITES TO THE MANUFACTURERS.

Byrdton, Va., June 8, 1900.—Ethel Potter, of this place, has written to the well-known firm of C. I. Hood & Co., Lowell, Mass., as follows: "We have taken Hood's Sarsaparilla every spring for a number of years, and think it the best spring medicine made." Judging from its remarkable cures of scrofula, salt rheum and other diseases we think it the best medicine for impure blood in any form.

REMARKABLY RESERVED.

"Shrinkshy is a very reserved man."

"Yes, indeed. Of course, I don't know, but I honestly believe he could have a toothache without any one knowing it."—*Harper's Bazar.*

FITZ LEE COOK STOVES.

The Southern Stove Works, Richmond, Va., are advertising their celebrated "Fitz Lee" Stoves in another column You can save money by purchasing direct from them.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



ELECTRIC

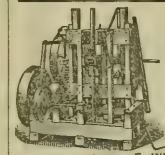
This wagon is composed of the best material throughout—white hickory axles, steel wheels steel hounds, etc. Guaranteed to carry 4000 lbs. These Electric steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one They can be had in any height desired and any width of "Electric Line" to 6 inches. With an extra set of these wheels, a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co. Box 146, Quincy, Ill



THE IMPROVED
SCREW STUMP PULLER
Write for Prices.



Chamberlin Mfg. Co., Olean, N. Y., U. S. A.



If YOU want a profitable investment buy
WYMAN'S UP-TO-DATE WELL-BORING MACHINE
It makes 150 or more drops of drill per minute and has more good points otherwise than all other makes of drills combined Circular free.
Chas. E. WYMAN, Martinsburg Ind.

USE LOOMIS' LATE IMPROVED
"CLIPPER" DRILLER
The result of 30 years' experience in Well Drilling.
LOOMIS & NYMAN,
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The Mietz & Weiss KEROSENE ENGINES



Cheapest and safest power known for pumping water, grinding corn, separating cream, sawing wood, and all power purposes. Send for catalogue.

A. MIETZ,
128 Mott Street,
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CHICKAMAUGA..

Pea Hullers and Hay Presses



Require less power and do better work than any other machines of their kind.

They never fail to give satisfaction.

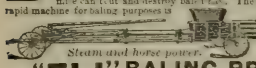
Write for circulars, prices, etc.

Chattanooga Implement & Mfg. Co.

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BALE YOUR HAY

It will keep better, sell better and save room. Rats and mice can't eat and destroy bale it has. The best and most rapid machine for baling purposes is



Steam and horse power.

The **"ELI" BALING PRESS.** Made in 3 sizes and sizes to suit everyone. All steel, light, strong, lasting. Write for free illustrated catalogue.

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ALL STEEL OR WOOD AND STEEL

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IRON PIPE AND FITTINGS

WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

ALL SIZES. WRITE FOR PRICES.

Write for Free Catalogue No.166 of merchandise for **HOME, FARM AND FIELD--** from Sheriffs' and Receivers' Sales.

Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., **AT HALF PRICE.**

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

Galvanized Steel Tanks. Feed Cooker. Tank Heater.



Shipped Subject to Inspection.

It costs you one cent for a card to write us and you get full particulars. Agents wanted.

FREELAND MANUFACTURING CO., - NILES, MICH.



SILOS

HOW TO BUILD ASK

WILLIAMS MFG. CO., KALAMAZOO, MICH.

When you write to an advertiser, mention THE SOUTHERN PLANTER

A QUICK DIAGNOSIS.

One of the anecdotes related by Dr. Weir Mitchell in the July instalment of his *Century* serial, "Dr. North and His Friends," might well be a personal experience of the author's:

I once went to Harrisburg and had to return during the night. The train was crowded. At last, in the stifling, dimly lighted smoking car, I found a man asleep across two seats. I awakened him, and saying I was sorry to disturb him, sat down.

After a little he said, "Do you know Dr. Owen North?"

Rather astonished, I said, "Yes."

"What kind of a man is he?"

"Oh, a very good fellow."

"He is like all them high-up doctors, I guess. He gets big fees. I want to know."

"No," said I. "That is always exaggerated. Why do you ask?"

"Well, I've had a lot of doctors, and I ain't no better, and now I haven't much money left."

Upon this my friend confided to me all his physical woes in detail. We parted before daybreak. It was too dark in the car for either of us to see plainly the face of the other.

About ten next day the man entered my consulting-room. As I should not have known him, except for a rather peculiar voice, I, too, remained unidentified. I could not resist so comic an opportunity. I said, looking at him, "Sit down. You have a pain in your back."

"That's queer. I have."

"And you are blind in your left eye, and your digestion is very bad," and so I went on.

At last he said: "I never saw a doctor like you. It scares a man, 'most. Can you cure me?"

I said. "Yes," and wrote out my directions. It was really a simple case.

When he produced a well-worn wallet I declined to take a fee, and said, "I owe you for the seat, and the good sleep I disturbed last night."

"Thunder! I see. You were the man. But law! why did you give it away. I'd have sent you the whole township."

FOREIGN BUT PERTINENT.

A Sunday-school superintendent always conducts the lesson review in his school. He spends about five minutes in explaining the lesson, and then asks, "Now, has any one a question to ask?"

Last Sunday he explained the lesson as usual, dwelling at length on its chief thoughts, and wound up with the usual question, "Now, has any one a question to ask?"

A member of the boys' junior class raised his hand.

"Well, what is your question?" asked the superintendent.

"Please, sir, are we going to have a picnic this summer?"—*Omaha World-Herald.*

O. I. C. HOGS.

Mr. A. C. Roper, Charlestown, W. Va., advertises the above well known breed of hogs. Mr. R. solicits correspondence with any one desiring some of the best blood of the breed.

"ALPHA-DE LAVAL"

CREAM SEPARATORS.



The De Laval Cream Separators were first and have always been kept best. They have always led in improvements, which imitating machines must await the expiration of patents to use. The 20TH CENTURY improvements give them still greater capacity and efficiency. They are immeasurably superior to any other system or method that can be employed in the separation of cream—saving $5.- to $10.- per cow per year over any setting system and $3.- to $5.- over any other centrifugal method.

All sizes, styles and prices —$50.- to $800.-

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THE DE LAVAL SEPARATOR CO.

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WE'RE HERE . . .

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THE BUCKEYE

LEADS and is the ONE Separator on the market they can't shake off. Our immense increase in business proves it.

A BEAUTY

And it does the work.

It is guaranteed to give satisfaction.

WE WANT AGENTS, and offer liberal commissions. Address Buckeye Cream Separator Co Oberlin, Ohio.



SEE AND WONDER.



Automatic Cream Separator

Simple; easy to operate; durable; saves half the labor. Butter-making simplified. More and better butter. Farmers' and Agents' Gold Mine. Price, $2.50; worth $100. Send stamp for particulars. Agents wanted. **Automatic Cream Separator Co., Box 27, Quincy, Ill.**



SADLER'S COW FETTER

Is warranted to make the worst kicking cow gentle to milk in two days. There is nothing equal to it for breaking nervous heifers. Agents wanted in every town. Illustrated circulars sent free. Address

H. J. SADLER,

Warren, Trumbull County, O.

WANTED A SINGLE MAN

A good milker; stripping not allowed. Room and board provided, and good wages paid. Will purchase a few fresh cows that give not less than 4 gals. a day, none others desired.

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(Opposite Norfolk, Virginia.)

MILK FEVER Cured by SCHMIDT TREATMENT

GARDINER BROS.,

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SPECIAL PRICES 30 Days' Trial. Guaranteed. Double and Combination Beam.

OSGOOD SCALE CO., 127 Central St.

Catalog Free. Write now. BINGHAMTON, N.Y.

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DIP YOUR SHEEP IN COOPER DIP
BENEFITS THE FLOCK — ERADICATES INSECTS AND DISEASE

25 gal. pkt., 50c.; 100 gal., $2. If druggist cannot supply send $1.75 for 100-gl. pkt. to
PURCELL, LADD & CO.,
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Valuable premiums to patrons. Get pamphlet from COOPER & NEPHEWS, 142 Illinois St., Chicago.


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25 different designs, they are all steel and cheaper than wood fence. Special prices to Churches and Cemeteries. Write us for catalogue.
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All Sales Direct from Factory at First Price.

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between "hard wire" and "Page Wire."
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.


FENCE! STRONGEST MADE. Built strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
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Makes and Repairs any kind of Wire Fence. Stays old barb wire fence, heavy or light stay. Pig-tight, 12 to 20 cents per rod. Price, $5.00. Special price to first.
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Half cost of Netting; Requires few posts, no rails. Best Hog, Farm, Yard, Cemetery Fences. Freight paid
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GINSENG We are Headquarters for Seed & Plants.
Valuable book about it, telling how to grow thousands of dollars worth, what used for and who is growing it. Sent for 10c
AMERICAN GINSENG GARDENS, ROSE HILL, New York.

MR. SOUSA'S STORY OF HIS FATHER.

Sousa's band is here breeding homesickness in the colony and fascinating the Parisians. There is nothing quite so good in Paris; indeed, there is nothing quite so good anywhere. And the march king's music has got into the heads and hearts of the people—Gavroche and his fellow-gamins march the streets whistling El Capitan.

I had seen Mr. Sousa on his pedestal—dressed in gold-braided uniform and waving a baton—any number of times, but he is quite as interesting, I assure you, when he lounges in an easy chair behind a good cigar. There were thirty or forty exiles gathered in Henry Mayer's studio. Mr. Sousa and I smoked in a corner. Mr. Sousa comes naturally by his liking for cosy corners.

"My dear old father was a music teacher," Mr. Sousa explains. "I really believe he was about the worst musician I ever knew, and I've known a great many. And then he had a remarkably firm objection to work. Father used to come down to breakfast about midday. After the meal he would light a cigar and lie down in an easy chair.

"'Tony, Tony!' mother would say, 'don't you know you have three lessons to give to-day?'

"Father would get up, stretch himself—he was a big man—and go over and kiss mother.

"'Tut, tut, dear,' he would say, 'the day was made for rest and the night for sleep'—and he would go upstairs to bed again."—VANCE THOMPSON, in *The Saturday Evening Post.*

USES OF LIME AND CHARCOAL.

THEY ARE INVALUABLE AIDS IN KEEPING THE HOME HEALTHFUL IN SUMMER.

"The heat and moisture of the summer months have a tendency to rust metals, mildew fabrics and cover all sorts of substances with mould," writes Maria Parloa of "The Care of the House in Summer," in the July *Ladies' Home Journal.* "Fermentation and putrefaction develop rapidly in vegetable and animal substances if they are not carefully watched. Lime and charcoal are two aids towards keeping the house sweet and dry, and the housekeeper should, if possible, provide herself with both of these materials. A barrel each of lime and charcoal in the cellar will tend to keep that part of the house dry and sweet. A bowl of lime in a damp closet will dry and sweeten it. A dish of charcoal in a closet or refrigerator will do much toward making these places sweet. The power of charcoal to absorb odors is much greater directly after it has been burned than when it has been exposed to the air for a length of time. Charcoal may be purified and used again and again by heating it to a red heat. The lime must be kept in a place where there is no chance of its getting wet, and not exposed to air."

When you say your blood is impure and appetite poor you are admitting your need of Hood's Sarsaparilla. Begin taking it at once.

FARMERS..
In the West and North, desiring to come South, should investigate the
Lands along the Lines of the
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Railway . . .
Write for pamphlets and information to
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Splendid Estate
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605 Acres (400 open), on the Rappahannock River, in Middlesex Co., known as "Rosegill." The open land is in good condition, and is suitable for grain and stock raising. Baltimore and Norfolk steamers pass daily. Has also a good oyster front; good fishing, and grand forests of Oak, Chestnut, and Pine. Ten room mansion, with portico on four sides. All necessary out-buildings. A good paying grain mill goes with the place. This place can be had at a low price, and on liberal terms. Send for fuller description, or information to G. G. TEMPLE, DANVILLE, VA.

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We have established a number of settlements around Meherrin, Va. Germans and Americans coming from almost any State in the Union, are prospering here. Land, climate, water, soil, market opportunities very good. Land from $4. to $15. per acre. Any terms. Write for our booklet, 24 pages, in German; will be sent free. Farms from 20 to 1000 acres, all prices.
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For Sale A RAPPAHANNOCK FARM 18 miles below Fredericksburg, containing 750 acres, 600 under cultivation or in grass, 400 fruits, well watered and in good condition. Dwelling with 11 rooms; best water in yard; grounds and view very fine. Healthy. 8 acres in fruit. In a mile of two wharves, and in four hours run of Washington. Terms liberal.
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Four Blue Grass Stock Farms
In Smyth, Washington, and Wythe Counties, Virginia. Fine for Grazing, Farming and Fruit Growing. For particulars, call on or write
GEO. W. RICHARDSON, Marion, Va.



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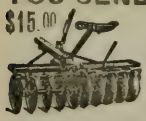
"Oldest and best, 20 years' test." If your dealer don't sell them, send us $30.00 and we will ship to your address. Booklet on "How to raise Beans" for 2c. stamp.
LE ROY PLOW CO., Le Roy, N. Y., 73 Lake St.

HENCH & DROMGOLD'S GRAIN FORCE FEED and Fertilizer Drill



Positively the [illegible] cost [illegible] cost grain drill [illegible] Many [illegible] grain [illegible] crimp it is [illegible] to the [illegible] Corners of [illegible] grain and fertilizer [illegible] Positively accurate in quantity [illegible] and be convinced. [illegible] plates free. Address
[illegible] GOULD, Mfrs., York, Pa.

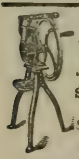
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All Steel and Iron but the pole. Easily handled by two horses. Send for delivery prices on all sizes. Disc Harrows, Lever Harrows, 11-foot Seeders. EMPIRE MFG. CO 10 River St., Sterling, Ill.



For POULTRYMEN!

The "DAISY" BONE CUTTERS
The Best in the World.
"Gem" Clover Cutter. The $5 Shell and Corn Mill, Farm Feed Mills, Power Mills.
Send for Circular and Testimonials.
WILSON BROS., Easton, Pa.

FACTS ABOUT PAINT When your HOUSE, BARN or ROOF needs PAINTING write SUTCLIFFE & CO., LOUISVILLE, KY. Ask for Book No. 83. It tells how to buy and paint to best advantage. Costs nothing. Will save much

For Sale Farm of 100 Acres, Near Crewe, Va.

The Norfolk and Western Ry. has its shops at this point. House of 3 rooms, nice shade. One mile from town. Price, $850
"BARGAIN," care So. Planter.

Virginia Farms

All prices and sizes. Free list on application.
WM. B. PIZZINI CO., Richmond, Va.

A WOMAN'S TRUE WORK.

IT IS NOT HER MISSION IN THE WORLD TO MAKE MONEY, BUT TO MAKE A HOME.

"The work of a woman in the world is not to make money, but to make a home; her true business in life is that of wife and mother," writes "An American Mother," on "Is a College Education the Best for Our Girls?" in the July *Ladies' Home Journal*. "That is true with regard to nine out of ten of these pretty girls who are tiptoeing about now in caps and gowns, and cherishing the fondest hopes that they may some day be learned Fellows and Deans. They will marry, perhaps, or remain single, helpful sisters or aunts. They will have houses to manage, marketing to do, stupid cooks to guide, babies to rear, sick children and men to nurse. Not once in a woman's life perhaps will she be called upon to quote from an Assyrian-Babylonic epic, or to dissect a cat. But three times every day a meal must be cooked under her supervision. At any minute, be she cook or countess, she may be called upon to make a poultice for a sick child, to change the sheets under him, to know why the bread is sodden and the meat uneatable, to give medicine intelligently to the baby in her arms. The college, be it remembered, takes the girl for four years out of family life in which this kind of training would be given to her. Its controllers, in their anxiety to develop her brain as fully as that of a man, forget the woman's life which is inexorably placed before her, and do not fit her for its inevitable work."

BLACKBERRY WINE.

One quart of juice, three quarts of water, two pounds of sugar. Mix all thoroughly and put into a keg or jug; leave open for six weeks and then cork. It is hard to keep this wine from souring, but when it does succeed it is a beautiful light color and is much nicer for seasoning than any blackberry wine I ever tried. Great care should be taken not to disturb it in any way during the fermentation. Grape wine made this way is very fine.

THE CALL OF THE AGE.

It is the impracticables, more than the idlers and the dissipated, who are the failures. In Chicago there are 4,000 lawyers, and 500 do all the business. In the South especially we need to get away from the idea that a profession is the only respectable occupation for a gentleman. We have too much practical work to be done here for many years to come for the professions to monopolize the brains and energies of Southern youth. We only have begun our industrial advancement. Here is indeed a garden spot, and the future for the youth of this section of country is bright with promise of prosperity if he is only trained to take hold of the task set for him. After all, it is the man of affairs who wields the influence. The age calls for manual training. Let it be taken up.—*Nashville American.*

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THE VIRGINIA FIRE & MARINE Insurance Company.
RICHMOND, VA.

ASSETS, - $800,000.

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"NORFOLK, VA."—Near the Sea.

There are cheap and beautiful homes in the "Sunny South," near the sea, and near that thriving seaport city, Norfolk, Va., for thousands of people who want happy homes in a mild, healthful, and delightful climate, a kind and productive soil, the very best markets in the world, the very lowest freight rates, good social, educational, and religious privileges, and the greatest number of other both natural and acquired advantages, to be found in any other one section of the Union.

The "CORNUCOPIA" tells you all about the beautiful section of country around Norfolk, Va. Send for (free) sample copies.
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FINE FARMS in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address
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VIRGINIA FARMS
$3 PER ACRE AND UPWARDS.
EASY PAYMENTS. CATALOGUE FREE.
GEO. E. CRAWFORD & CO., Richmond, Va.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

SUPERIOR GRAIN AND FERTILIZER DRILLS

NO PREPARATION of land is necessary in wheat fields in order to work this drill. Farmers can go into their wheat **stubble fields right after harvest and sow Cow-Peas** to perfection. It also sows all other grains in the best manner possible.

THE ORIGINAL DISC DRILL.

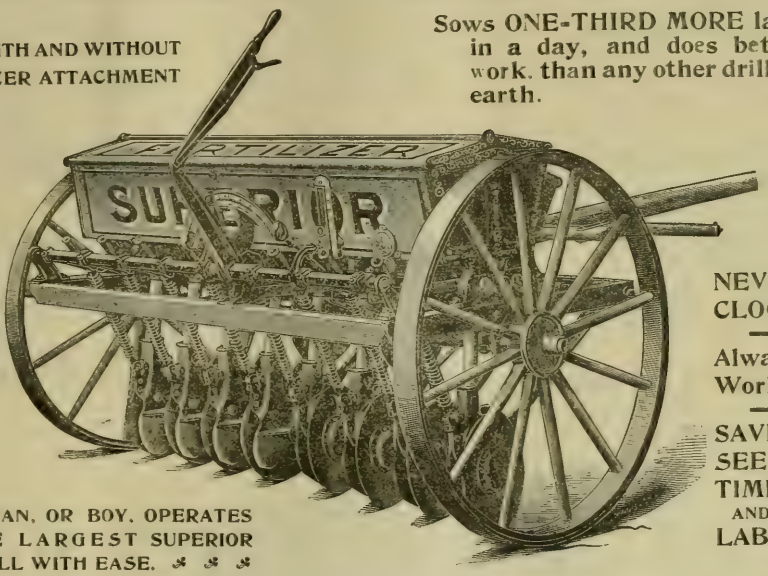
MADE WITH AND WITHOUT FERTILIZER ATTACHMENT

Sows ONE-THIRD MORE land in a day, and does better work, than any other drill on earth.

SOWS COW PEAS.

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BEARDED OR RUST-PROOF OATS.



NEVER CLOGS.

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Always Works.

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SAVES SEED, TIME AND LABOR.

ONE MAN, OR BOY, OPERATES THE LARGEST SUPERIOR DRILL WITH EASE.

SUPERIOR DISC DRILLS represent the best value for the money invested. They have the most perfect grain and fertilizer feeds—positive and sure in action, and never fail to sow the required amount of both grain and fertilizer. You are sure of even distribution of seed sown at a regular uniform depth. It surpasses the Hoe Drill because it will not choke in trash, and never bunches or breaks. Superior Disc Drills will **seed one-third more land** per day than any other drill and **do better work.** No other drill wears as long without repairs. There are no removable gears—no traps—on the Superior. Money spent for Superior implements represents a safe, profitable and permanent investment. THEY WEAR. THEY LAST.

EASY to Buy; EASY on Team; EASY to Work. It's well worth your while to ask about this drill. Write us now. Our new catalogue D is fine. Tells about all Superior implements, and is **free to all.** Your request on a POSTAL CARD WILL BRING IT.

MANUFACTURED BY

THE SUPERIOR DRILL COMPANY,

SPRINGFIELD, OHIO.

PEKIN DUCKS..

To make room for my young stock, and to avoid inbreeding, I will sell my one hundred (100) Breeding Ducks of last winter, and also one thousand (1000) Young Ducks at half price, $1.00 a piece. The 100 breeders were one year old last spring, and I bought them from the celebrated ranch of Geo. H. Pollard last fall.

White Wyandottes..

of the Duston and other equally fashionable strains, for sale at reasonable prices.

R. LEE HARDY, Berkley Va.
(Opposite Norfolk, Virginia.)

OLD DOMINION PROLIFIC LAYING STRAIN of

B. P. ROCKS and WHITE WYANDOTTES

Young stock ready for shipment September 1st. **All stock gauranteed pure and bred for utility.** Correspondence cheerfully answered.

Old Dominion Poultry Yards. J. H. SLEDD, Negro Arm, Va.

Green Valley Poultry Yards

LT. BRAMAH, W. P. ROCK and W. WYANDOTTE Chickens, two months old, 40c. each. EGGS for hatching, $2. hundred. Young M. B. TURKEYS, bred from 45-lb. tom, 2 mos. old, $1.00 each. A recipe for the never-failing cure of gapes, also for a sure cholera cure, cures even when too sick to eat, 10 cents each.

C. H. BENNETT, McDonald's Mills, Va.

WHY PAY FROM $1000 TO $2000 —for a—

Percheron Stallion

When you can purchase a FIRST CLASS yearling or 2-year-old for one-fourth of the amount, and a good weanling for less? Come and see what I can show you in this line. JNO. F LEWIS,
N. & W. R. R. Lynnwood, Va.

A BARGAIN

For sale a KENTUCKY SADDLE STALLION. As pretty as a picture. Ideal gentleman's saddle horse. A horse that will attract attention anywhere. For photo., pedigree and full particulars, address

X91, Care of Southern Planter.

DEVONS FOR SALE

We offer a small herd, about ten head, old and young, with or without 2-yr.-old bull. We can also furnish a very desirable lot of Jersey heifers and a young herd of Guernseys. These cattle can be seen any time after July 1st, if due notice is given.

M. B. ROWE & CO., Fredericksburg, Va.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

WHY FRANKLIN DID NOT WRITE IT.

"It has always been a curious puzzle why Franklin, the man of ripe age, of commanding distinction, and of approved literary skill, was not selected to write this declaration instead of Thomas Jefferson, then only thirty three years old and comparatively unknown," says John Gilmer Speed, in *The Saturday Evening Post*. "It could not be that Franklin was passed by because he had done everything within his power to avert the war and reconcile the differences between the Colonies and the Mother Country, for all wise men in the Colonies did all that honor permitted in that direction until the die was cast. No, it was not a fear of Franklin's earnestness in the cause of the Colonies—it was probably the fear of Franklin's humor.

"He was not only the greatest man of his time, but he was one of the greatest humorists of any time. And so his associates were possibly afraid that he would put a joke in the Declaration, and passed him by and selected the lank young Virginian with the freckled face.

"As it was, Franklin did have his joke, for when the members of Congress were about to sign the Declaration, Hancock, whose earnestness is expressed in the bold signature which comes first, said in his own earnest way: 'We must be unanimous; there must be no pulling different ways; we must all hang together.'

"'Yes,' replied Franklin, 'we must hang together, or we shall be pretty sure to hang separately.'"

CUT BOTH WAYS.

In an interval in the drilling one of the volunteers belonging to a crack regiment stepped out from the ranks to light a cigar from that of his officer.

The latter took this evidence of the democratic spirit of freedom in good part, but said, by way of a hint, "In the regular army you couldn't have done this to an officer, Brown.'

"Right you are," responded the private; "but in the regular army you could not be an officer."—*Collier's Weekly.*

THE POINT OF THE STORY.

Mama (anxiously watching her little boy at dinner—"My dear child, you really should not eat your pudding so quickly."

Small child—"Why not, mama?"

Mama—"Because it is dangerous. I once knew a little boy about your age who was eating his pudding so quickly that he died before he had finished it."

Small child (with much concern)—"And what did they do with the rest of his pudding, mama?"

BLACKBERRY WINE.

The berries must be as fresh as possible. Crush and strain out the juice. To two quarts of juice put two quarts of water and two and one-half pounds of sugar. Mix well and set in a cool, dry place with the bung of the cask or keg tied over with muslin. Be careful not to shake. At the end of six weeks the fermentation will be accomplished, and it should be put into bottles and corked.

Tamworth and Poland-China

A few nice PIGS for sale of each kind, entitled to registration.

J. C. GRAVES, Barboursville, Va.

BERKSHIRES

I have for sale some extra fine 8 weeks old BERKSHIRE BOAR PIGS, by "BILTMORE BOY," son of the unbeaten "KING LONGFELLOW," and out of extra good sows. Entitled to registry in Am. Berk. Assn. Also SCOTCH COLLIE PUPS out of working stock.

R. S. CAMERON,
WARE VIEW FARM, GLOUCESTER, VA.

SWIFT CREEK STOCK AND DAIRY FARM.



150 YOUNG THOROUGHBRED
JERSEY HEIFERS and BULLS.

FOR SALE AT HARD PAN PRICES.

Blood of the famous **Stoke Pogis, St. Lambert and Coomassie** blended. Paying special attention to breeding my cattle, I have reached a degree of excellence not surpassed by any herd in the State. POLAND-CHINA Pigs always on hand. Write for what you want.

T. P. BRASWELL, Prop., Battleboro, N. C.

ELLERSLIE FARM
Thoroughbred Horses
AND SHORTHORN CATTLE,
Pure Southdown Sheep and Berkshire Pigs.
FOR SALE. R. J. HANCOCK,
CHARLOTTESVILLE, VA.

DORSET SHEEP

We have a few nice Buck and Ewe lambs to spare.

Apply to D. O. NOURSE, Agriculturist,
BLACKSBURG, VA.

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

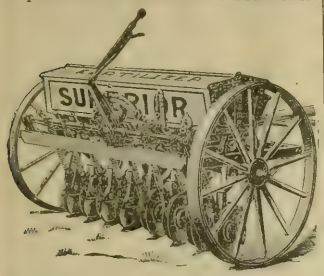
Poultry Plant for sale at about one-half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va.
WALTER WATSON.

THE SUPERIOR DISC DRILL.

The Superior Disc Drill, advertised elsewhere in this issue of the *Southern Planter*, is the original Disc Drill. This is the drill that revolutionized the grain drill business, and made it possible, practical, and profitable for farmers to sow any kind of grain in any kind of soil, trash, pea-vines, crab-grass—in fact, it will sow and cover grain anywhere a disc harrow will run. It is manufactured by the Superior Drill Co., Springfield, Ohio, who own and operate the largest grain drill factory on earth. Their plant is equipped with all the latest and most improved machinery for the manufacture of their matchless seeding implements. These implements are standard the world over.



Nothing but the best of everything enters into the construction of these drills. They are built upon honor and sold on merit. Mechanically and scientifically they are correct, and are guaranteed to do all that is claimed for them.

Since 1893, the Superior Drill Co., of Springfield, Ohio, has made a specialty of *Disc Drills*. This company put on the market the first successful disc drill, and is responsible for the advancement made in this line of farm implements. The great advantages of the disc drill over hoe or runner drill lies in the fact that it does not choke or clog in trashy land, and never more than one man is required to operate it. It cuts into hard land much better than any style drill. It is lighter draft, and sows all grains at a more uniform depth than any other drill.

Their new 1900 Catalogue will help you. Write for it.

DON'T DRINK ICE-COLD WATER.

Ice-cold water is not so good as iced water—that is, water cooled by ice without coming in contact with it. The less of either the better. It is an excellent practice to drink water—an abundance of it—just before retiring, also the first thing in the morning. It is a cleanser of the system, and is a good diuretic—July *Ladies' Home Journal*.

Essex Pigs and Southdown Sheep If you wish to purchase Essex Pigs and Southdown Sheep thoroughly acclimated and eligible to registry, address L G JONES, Bethania, N. C



Also Half Dorset Lambs for sale.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

ASA B. GARDINER, Jr., Manager,
GLENCOE, MD

The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.

We mail a little "Book of the Herd" on request.

THOMPSON & TRIMBLE,
SWOOPE, AUGUSTA CO., VA.

Breeders ..of.. **Shorthorn Cattle and Shropshire Sheep.**

...CORRESPONDENCE SOLICITED.

ROCK HILL FARM.

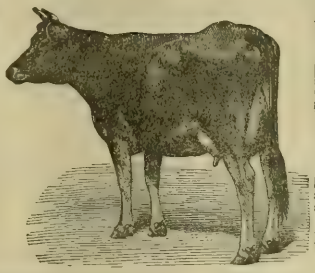
Shorthorns, Shropshire Sheep

..AND..

Poland-Chinas

A Few Choice Gilts Unbred..

B B. BUCHANAN,
BROWNSBURG, VA.



JERSEYS FOR SALE

Some choice young COWS and HEIFERS, sired by the great St Lambert bull,

ETHEL'S JOHN BULL No. 29005 whose dam, Ethel of Shelburne, granddam Crocus of St. Lambert, and her full sister, the great Mary Anne of St. Lambert, have an average butter record of 22 lbs. and 7 ounces in 7 days.

Also some extra fine BULL CALVES out of high testing daughters of the above bull, and sired by our grand young bull,

ADMIRAL ST. LAMBERT No. 51338 whose dam, Flower of Meridale, has a butter record of 26 lbs., 11¼ oz., in 7 days, and a daily milk record of 53 lbs., 8 oz.

We have also for sale some fine cockerels and pullets of Indian Game, Barred P. Rock and White Wyandotte fowls.

BOWMONT FARMS, SALEM, VA.

SIR JOHN BULL



Of ENGLISH birth, of ENGLISH AMERICAN celebrity, now has progeny from the Crystal Spring House in the Catskill Mountains of New York, to Lawtey, Florida. This is what J. S. Bennett, of Lawtey, Fla., says of Sir John's pigs: "The three pigs arrived April 4, 1900, all O. K., and are dandies." SIR JOHN is now 3 years old, has never been crossed, and is, I think, as fine a specimen of the Berkshire as can be found in England or America. He has 22 sows, representing three strains, as associates. One strain is from the World's Champion Boar, COLUMBIA'S DUKE, Reuben Gentry's great show boar. Bred Sows, Boars, Gilts and Pigs for sale,

PASSAPERN STOCK FARM. **THOS. S. WHITE, Lexington, Va.**



SOUTHSIDE STOCK STUD,
ON ROANOKE RIVER, IN MECKLENBURG CO.

Trotting Horses, Red Polled Cattle, Dorset Horned, Shropshire and Hampshiredown Sheep, Berkshire Hogs, Pedigree Llewellyn Setters and Scotch Collie Dogs.

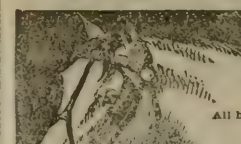
All Stock Thoroughbred and Registered.

GEO. B. FINCH, Prop., Boydton, Va.

MAGAZINES.

The timeliness of the July Century is due, in large measure, to its literary and pictorial treatment of the present Mecca of holiday makers. Eight full page drawings by Castaigne illustrate the Exposition; and four other full page and several smaller drawings, from the same pencil, form a pictorial commentary on Richard Whiteing's paper on "Artistic Paris." Having begun life as an artist, Mr. Whiteing writes with keen appreciation of his subject, in a style, moreover, that has many of the qualities distinctive of the French man of letters. In the matter of full page pictures, the Century probably makes a record for itself this month, the twelve already specified being less than half the total number. One of the other fourteen is Thomas Cole's wood engraving from Constable's "The Hay-Wain;" and six of them are found, with many smaller ones, in the current instalment of Morley's "Cromwell." In an article on "The Commercial Ascendancy of the United States," the Hon. Carroll D. Wright, Commissioner of Labor, hazards the guess that in exports for the year ending March 31 last, America has at last surpassed her greatest rival, England. Prof. W. M. Sloane writes with intimate knowledge of the late Miss Sarah Porter and her unique educational work at Farmington. The story of a long and prosperous musical career is begun in this number, in the form of the reminiscences of William Mason, whose opening article teems with recollections of the famous composers of half a century ago, with reproductions of autographs and other illustrations. "How to Safeguard One's Sanity," by the Rev. J. M. Buckley, is the contribution of a doctor, not of medicine, but of divinity, who has made a special study of insanity, its causes and its treatment. The artistic possibilities of "Civic Festivals and Processions" are pointed out by Barr Ferree and Charles R. Lamb, in two brief articles, for which E. H. Blashfield has designed a series of appropriate decorations. In fiction, the number is especially rich, a wide range of scene and action being covered by the seven short stories and five brief fables. "Home Censorship of the Theatre," "Changes of Taste in Fiction," and "Country Clubs and Inns," are this month's editorial topics.

The ever-glorious Fourth was not forgotten when the editor of *St Nicholas* "made up" the July number of that magazine for the young. "The Battle of Santiago (July 3, 1898,) is the frontis piece. It illustrates a paper by Miss Jessie Peabody Frothingham, in which are chronicled "Some Great Sea-Fights," beginning with Manila and Santiago and going back thence to the first great event in naval warfare, the battle of Salamis, and coming down chronologically, but by leaps and bounds, to Actium, Lepanto, the Armada, the Anglo-Dutch fight on the Downs in 1666, Trafalgar, and Mobile Bay. "Porto Rico's First 'Fourth'" is described by Frederick A. Ober, "How to Celebrate," is an acrostic in verse by Helen M. Richardson; "The Cannon-Cracker" is another timely bit of versification by Mary Marshall Parks: and



Easy Harness

All harness, old or new, is made pliable and easy—will look better and wear longer—by the use of

Eureka Harness Oil

The finest preservative for leather ever discovered. Saves many times its cost by improved appearance and in the cost of repairs. Sold everywhere in cans—all sizes.

Made by STANDARD OIL CO.

PURE BRED STOCK SALE

at "Hill Top," Staunton, Va., July 24, 1900

In our May and June advertisements, we offered all of our stock for sale privately, but since decided to hold same until above date, when we will offer the **grandest lot of stock ever sold in the Valley of Virginia.** Our herds consist of: **JERSEY CATTLE,** bulls, cows and heifers; **SOUTHDOWN** and **SHROPSHIRE SHEEP,** bucks, ewes and lambs; **BERKSHIRE** and **POLAND-CHINA SWINE,** both sexes, all ages. All stock thoroughbred and best strains of its breed and in grand condition.

If You Want a Good Foundation for a Herd, We Offer a Rare Chance

Parties desiring to inspect stock, will be met with conveyance at Staunton on short notice. **Positively** no stock has been sold, or will be sold, until day of sale.

TERMS: All sums under $50.00, cash. Over that amount a credit of six months will be given; the parties to execute negotiable notes, satisfactorily endorsed. 3 per cent. discount for cash on amounts over $50.00.

Send for Catalogue. Inquiries promptly answered.

H. A. S. HAMILTON & CO., Staunton, Va.

At WELDON FARM, Pulaski County, Va.,

Wednesday, September 12th, 1900

45 HEAD OF SHORTHORNS

AT PUBLIC AUCTION. The offering will consist principally of YOUNG COWS and ONE and TWO-YEAR OLD HEIFERS and YOUNG BULLS from six to seventeen months old, of very high breeding and individual excellence. This sale will afford a rare opportunity to buy breeding stock to found herds and to improve others.

W. W. BENTLEY, Pulaski, Va.

FOR SALE

Highlands Stock and Poultry Farm ....



at a very low price and on good terms.

Choice **SHROPSHIRE SHEEP** and **Lambs.**

The best **POLAND-CHINA, BERKSHIRE** and **CHESTER PIGS.**

Can furnish extra fine **DURHAM** and **JERSEY CATTLE** at farmer's prices.

EGGS, B. P. Rock and Silver Wyandotte

If you want a good home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

other contributions dealing, more or less directly, with matters warlike, are "A Little Daughter of the Revolution," by Mary Bradley; "The Siege of Number Six," by Rossiter Johnson; "Towser: A Sailor's Pet" on the old Monocacy; "Eleanor's Colonel," an English Soldier of Revolutionary times, by Annah Robinson Watson; and even "The Bulb of the Crimson Tulip," a Revolutionary story, by Lillian L. Price. In Nature and Science we find "Fireworks from the Mud," and in St. Nicholas League "The First Automobile Gun," and several poems by youngsters in celebration of the Fourth of July. Yet the magazine is by no means given over wholly to war and war's alarms.

The Forum has articles on "Our Relations with Germany," by Wm. C. Fox, formerly consul at Brunswick, Germany; "Social Reform and the General Election," by Thomas Burke, member of the Liverpool (Eng.) Municipal Council; "The Shipping Subsidy Bill," by Eugene J. Chamberlaine, U. S. Commissioner of Navigation; "Narvan's Real Story," by Fred. L. Clarke; "Lessons of the $175,000,000 Ash Heap," by W. J. Bores; "Chinese Civilization, The Ideal and the Actual," by D. Z. Sheffield, late President of the North China College; "Is Crime Increasing?" by Noland P. Falkner; "The United States as a World Power," by Charles A. Conant; "Does Government Service Pay," by A. Maurice Low. The number is an excellent one, and no one can read it without deriving both instruction and profit from it.

The *New Lippincott* for July is announced as "A Summer Story Number," and this descriptive title fitly characterizes it. Besides the charming complete novel, "An Anti-Climax," by Ellen Olney Kirk, there are five diverting and lively short stories in keeping with the season of outdoor life and idle occupations.

The Cosmopolitan retains its pre eminence as one of the finest illustrated of the monthlies, and the reading matter is usually well selected and interesting. The magazine is one of the cheapest published.

"The Fashionable Summer Resorts of the Century" is a feature of the July *Ladies' Home Journal*, especially interesting from the glimpse it gives of the social life of these places at times when they were considered accessible only to the rich. "The Girl Who Fought in the Revolution" is the story of a young woman who battled for the cause of liberty on the field and made innumerable conquests of female hearts. She enlisted as a man and wore the uniform of a soldier. A contribution to the July *Journal* that will find a universal welcome is Ernest Seton-Thompson's dramatization of "Wild Animals I Have Known," in which the author's friends of forest and plain are impersonated by children. Edward Bok writes of "The American Man and the Country," "An American Mother" writes on "Is a College Education the Best for Our Girls?" and Edward B. Rawson on "Letting

HYDE PARK HOTEL



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COOL
Overlooking Lake Michigan

Reasonable Prices
COOL
SEND FOR BOOKLET

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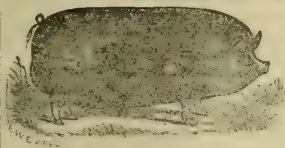
"BLACKLEGINE."

"Pasteur Vaccine"
SAVES CATTLE FROM
BLACK LEG

Nearly 2,000,000 successfully treated in U. S. and Canada during the last 5 years. Cheap, safe and easy to use. Pamphlet with full particulars, official endorsements and testimonials sent FREE on application.

Pasteur Vaccine Co., Chicago.
BRANCHES: St. Paul, Kansas City, Omaha, Ft. Worth, San Francisco.

Registered Berkshires
"MAYOR OF BILTMORE" at Head of My Herd.



Write for my prices on pigs before purchasing elsewhere I can furnish you the **finest** stock at reasonable prices

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.
Correspondence solicited,
Southern and N. & W. Rys. T. O. SANDY, Burkeville, Va.



PLEASANT VIEW HERD of..
IMPROVED REGISTERED CHESTER WHITE SWINE.

Both Pa. and O. strains. Can furnish pairs and trios not related. If you are interested in fine swine write me.

ARCHIE C. ROPER,
References: 212 Lock Box, CHARLESTOWN, W. VA.
Bank of Charlestown, First National Bank, Southern Express Agt., U. S. Exp. Agt.

Children Rust in Summer." "A Missionary in the Great West," "The Autobiography of a Girl," "The Voice in the Choir," and "The Story the Doctor Told," are all interesting features. Howard Chandler Christy's page drawing shows "The American Girl at Her Sports." There are numerous other pictorial features. The practical, helpful articles of the July *Journal* are timely. By The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

Harper's Bazaar, in its new form of make-up, is a great improvement upon the old one. It is now a compact, convenient journal in magazine form, and is full of matter of interest to the ladies.

Harper's Illustrated Weekly retains its pre-eminence as the best illustrated journal issued. The reading matter deals with topics of momentary interest, and is always on a high plane, both morally and intellectually.

The Saturday Evening Post becomes more popular every week. Some of the best writers and best known thinkers are regular contributors to its columns.

HANDSHAKING A RELIC OF KNIGHTHOOD DAYS.

In the days of knighthood every man carried a sword and was ready to slash his neighbor upon the slightest pretext. When friends met they grasped one another by the right hand, thereby indicating peaceable intentions, as each one thus gave up to the other his fighting arm. That is why we shake with the right hand.—June *Ladies' Home Journal.*

RAISING THE HAT AN ANCIENT SALUTATION.

When a knight of old entered a company of ladies he removed his helmet, to indicate that he considered himself among friends, and that there was no need to protect himself. This practice has survived in the custom of raising the hat when saluting a lady.—June *Ladies' Home Journal.*

Assume a virtue, if you have it not.—Shakspere.

A FINANCIER.

He was president of a railroad, and so terribly close was he,
He hated to let the conductor and engineer ride free!
And once a train struck a farmer's cow and threw her into the air,
And she lit on the cow-catcher coming down, and they didn't know she was there;
She was carried twelve miles before they stopped, and what could the farmer do?
For the cow, by a miracle, wasn't hurt, so he had no grounds to sue;
And on top of that he received a bill which made him sweat and swear,
For the president wouldn't give up his cow till he had paid her railroad fare.

Edmund Vance Cooke, in July *New Lippincott.*

BILTMORE FARMS,
BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO **GEO. F. WESTON, SUPT.**

I have For Sale some VERY HANDSOME **POLAND-CHINA**

PIGS

That were ready for shipment 1st June. They are from the sons and daughters of Look-Me-Over, Chief Tecumseh II, J. H. Sanders, and others as noted in the breeding lists; also a couple of young boars ready for service. Also for sale **Shetland Ponies, Riding and Driving Horses, Red Polled Cattle and Pure-bred Shropshire Sheep, One Imported Buck for sale.**

ARROWHEAD STOCK FARM,

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CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

THE WEDDING FEE.

EXPERIENCES OF A BOSTON CLERGYMAN.

The experiences of ministers are varied regarding the wedding fee. Sometimes this reward for services rendered takes strange forms. Sometimes it is unexpectedly large, and again it is disappointingly small when the minister is led to suppose that it will be large.

This was the case with a minister living in the suburbs of Boston, who married a young couple at his home one evening not long ago. The couple arrived at the parsonage without any previous arrangement regarding their coming. The minister was at home, and in a few minutes they were made man and wife. Then the bridegroom handed the minister a large white envelope, its contents bulging in a way suggestive of possible and even probable bank bills. Hastily tearing open the envelope, the minister drew forth a sheet of paper, folded many times, on which was written—

"Many thanks for your kind efforts in our behalf, and may we meet above."

At another time, this minister married a young couple at the home of the bride. The wedding was a very pretentious affair, with a supper served by a caterer, and a general indication of prosperity that led the minister to hope for something handsome in the way of a fee. Just before his departure the bridegroom took him aside into a little hall-way and said:

"Sorry, parson, that I am not fixed so that I can do the regular thing by you, but this marrying business is mighty expensive, and—er—er—say, would it be convenient for you to loan me a five until a week from Saturday night, when I will come around and pay it, sure pop!"
—MORRIS WADE, in the July "*New Lippincott.*"

Summer resorts are not to be judged by the adjectives they use.—*From the Saturday Evening Post.*

C. C. Taliaferro,
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SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

POLAND-CHINA HOGS.—Pigs, six weeks old, $4 50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.

LAKOTA, May 30, 1900.

Mr. C. C. TALIAFERRO, Nasons, Va.:

Dear Sir,—I generally keep from 150 to 200 sheep, but have never had any to shear as heavy fleeces as those that I purchased of you. I have out of one of your ewes a yearling that was clipped when four months old and was badly wintered, which clipped, when about sixteen months old, 14 lbs. of wool. I think, if it had not been sheared as a lamb and been well wintered, I would have gotten about 18 lbs. of wool from him. You can place my order this spring for two more lambs, which you have priced to me at very reasonable prices.

Yours respectfully, C. B. CHILTON.

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SUMMER DESSERTS.

One of the blessings conferred on us by fruit is that it partially exempts the tired housekeeper from preparing desserts in the heat of summer. A rich, hot dessert at this season is as inappropriate as furs or flannel would be. Fine fruit, thoroughly ripe and freshly gathered, is so much more wholesome as well as more delicious than any manufactured dessert, that it seems folly for a housekeeper to make the latter when she can command the former. I often wonder why a woman should toil over a fruit ice cream instead of having the fruit in its natural state, with the addition of sugar and cream. But as most people (especially young ones) are excessively fond of ice cream, this is the most commonly seen dessert in summer. It is unwise for a housekeeper to attempt ice cream if it interferes with her churning and stints her family in butter, as the latter is far more essential to the health and comfort of her family than ice cream. And even where you have an abundance of dairy products, it is not well to use unmixed cream for ice cream. Half cream and half milk make it sufficiently rich, or one-third cream and two-thirds custard, made of milk and eggs.

The following is a good receipt for strawberry cream:

One quart of cream, whipped stiff.

One quart of sweet milk.

Two quarts of strawberries, reduced to a fine pulp.

One pound of sugar.

Soft peaches make the best of fruit creams. You must get them deep ripe, peel and cut them up, and then reduce them to a fine pulp. You may observe the same proportions as those given for strawberry cream. In winter, you can make very good peach cream with the canned fruit, and you can also utilize canned pineapple in the same way.

I have seen dewberry ice cream, but it seemed to me not half so good as the ripe, fresh berries with cream poured over them.

Lemon ice is one of the most refreshing of the frozen desserts. Prepare the lemons as for lemonade, then add the frothed whites of a half dozen eggs to a gallon of the lemonade, and freeze it. As there is a good deal of litter involved in freezing cream, it is a good plan to take the freezer to some out building, not in use in summer, as, for instance, the woodhouse. Beat up the ice in pieces the size of a walnut. Put alternate layers of ice and salt in the freezer, taking great care not to let a particle of the salt get into the cream. If you make ice cream frequently, it would be worth your while to buy a bag of coarse, cheap salt for the purpose. Take a long knife (as, for instance, a carving-knife), and cut away the frozen cream from the sides of the freezer, so as to allow softer parts of the cream to take its place. When it is frozen stiff, keep it in a cool, dark place, covered with a heavy blanket, until you are ready to serve it. When your freezer turns with difficulty, you will find it a great assistance to grease the screws.

In preparing berries for meals, they should be carefully picked over and the trash and defective ones removed. They

BLACK DEATH

To Kill TOBACCO WORMS and Not Injure the Tobacco.

According to the theory of MAJ. RAGLAND, of Halifax Co., Va., it is all important to kill off the first crop of worms on the young tobacco, as if allowed to mature, they go into the ground and turn to moths, every one of which lays 200 eggs; hence, the second crop is so **numerous** and **destructive.**

Remove the cause and the effect ceases. It will take only a small quantity of

BLACK DEATH

to kill them all off, and unless your neighbor's moths pay you a visit, you will have very little trouble with the second crop.

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should not be washed unless they really need it, as washing impairs their flavor. Sugar should not be added till the last moment before eating the berries, as it draws out the juice in a stream and withers and shrivels the fruit. Peaches should not be peeled till half an hour before dinner, as they darken very rapidly after being peeled, especially if sugar be added to them. But you may cap your strawberries several hours before dinner, without injuring them, if you put them in a cool place.

While inclined, in general, to discourage cooked desserts for summer, I must make an exception in favor of cherry and apple pie, both of which are delicious desserts, if properly made, with light pastry. Apple float is an extremely nice, delicate dessert. You peel, core and cut up the apples, stew them, and then run them through a colender. Then sweeten them to your taste and flavor with a few drops of vanilla or lemon juice. The frothed white of an egg or two makes it a much prettier dish. Apples prepared in this way make a very nice filling for pies, though some persons prefer them simply sliced for the purpose.

It is folly for a housekeeper to attempt jelly or Charlotte Russe, in summer, without an abundance of ice. Indeed, these desserts are more suitable for winter, any way. M. W. E.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Year-book for the Department for 1899. This is a large volume filled with matter of great interest to every farmer. It can be had from the Senators and Congressmen on request.

Experiment Station Record. Vol. XI. Nos. 9 and 10.

The Use of Water in Irrigation in Wyoming. Bulletin 81.

Division of Botany. Circular 24. Red Clover Seed.

Division of Botany. Circular 25. The Seed of Beardless Brome Grass.

Methods of Seed Testing and their Relation to the Farm and Garden.

Division of Forestry. Bulletin 27. Practical Tree Planting in Operation.

Section of Foreign Markets. Bulletin 19. Our Foreign Trade in Agricultural Products.

Division of Statistics. Statistical matter relating to Principal Crops and Farm Animals, Transportation Rates, &c., 1899.

The Crop Reporter, June, 1900.

"LITTLE GIANT" and "PENNSYLVANIA" PEANUT PICKERS.



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Colorado Experiment Station, Fort Collins, Col. The Beet Army Worm.

Delaware Experiment Station, Newark, Del. Bulletin 46. The Southern or Cow pea in Delaware.

Idaho Experiment Station, Moscow, Id. Bulletin 23. Meteorological Records. Prediction of Frosts.

Illinois Experiment Station, Urbana, Ill. Bulletin 57. The Smuts of Illinois Agricultural Plants.

Bulletin 58. Composition and Digestibility of Corn Fodder and Corn Stover.

Bulletin 59. Orchard Management.

Kansas Experiment Station, Manhattan, Kas. Bulletin 97. Skim Milk Calves.

Bulletin 98. Some Scale Insects upon Kansas Grasses.

Louisiana Experiment Station, Baton Rouge, La. Twelfth Annual Report.

Bulletin 60. Charbon (Anthrax).

Maine Experiment Station, Orono, Me. Bulletin 64. Poultry Experiments in 1899.

Bulletin 65. Coffee Substitutes; Nut Oils; Testing Seeds; Potato Pomace.

Nebraska Experiment Station, Lincoln, Neb. Bulletin 65. Blackleg—Its Nature, Cause, and Prevention.

New Hampshire Experiment Station, Durham, N. H. Bulletin 71. Corn Culture.

North Carolina Experiment Station, Raleigh, N. C Bulletin 170. Gardening Under Glass.

Pennsylvania Experiment Station, State College, Pa. Bulletin 49. Field Fertilizer Experiments on Tobacco.

Bulletin 50. Distillery Waste. Cattle Food Analysis.

Bulletin 51. Small Fruits in 1899.

South Carolina Experiment Station, Clemson College, S. C. Bulletin 52. Pig Feeding.

Bulletin 53. Analyses of Commercial Fertilizers.

Tennessee Bureau of Agriculture, Nashville, Tenn. Analyses of Commercial Fertilizers.

Virginia Weather Bureau, Richmond, Va. Report for May, 1900.

West Virginia Experiment Station, Morganton, W. Va. Bulletin 63. Commercial Fertilizers.

Bulletin 64. Sugar Beet Investigation in 1899.

Bulletin 65. Commercial Fertilizers.

Wisconsin Experiment Station, Madison, Wis. Bulletin 82. Experiments in Grinding with Small Steel Feed Mills.

Bulletin 83. Silage and the Construction of Modern Silos.

West Indian Bulletin. The Journal of the Imperial Agricultural Department for the West Indies. Vol. 1. No. 3. Bowen & Sons. Bridgetown, Barbadoes.

Imperial Department of Agriculture for the West Indies. Moth Borer in Sugar Cane.

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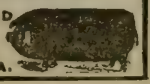
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The Holstein Friesian Association of America. Report of Economic Tests for the official year 1899–1900.

International Live Stock Exposition. Union Stock Yards, Chicago, Ill. Preliminary classification of live stock.

BOOKS AND PAMPHLETS.

Hemp.—Agricultural Treatise on the Culture of Hemp for Seed and Fibre, with a Sketch of the History and Nature of the Hemp Plant. By S. S. Boyce. Orange Judd Co., New York. Price, post paid, 50 cents. This book should be read by all who are interested in the development of the Fibre industry. We can grow hemp successfully in the South, and ought to do so, and establish mills for working it. We can supply the book.

Journal of the Columbus Horticultural Society, Columbus, Ohio. Volume XII, No. 1.

The New York Farmers, 1899–1900. Proceedings of the New York Farmers, Season 1899–1900. This is a report of the proceedings at the meeting of the wealthiest Farmers' Club in the world. Nearly every member is a millionaire—most of them are multi-millionaires. The Proceedings are very interesting and instructive.

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Twenty-Fourth Annual Catalogue of the Agricultural and Mechanical College of Texas.

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Catalogue of the McCormick Right-Hand Rice Harvester. All rice growers should send for this catalogue.

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Of course there may be a limit to the good times, but then we should remember that another United States senatorial election is soon to take place in Montana. —*From the Saturday Evening Post.*

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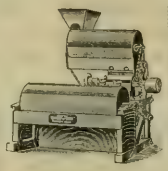
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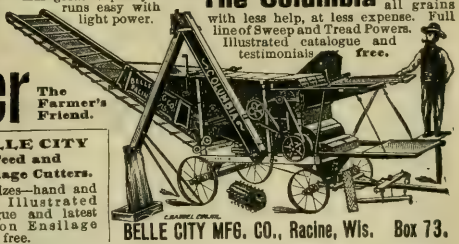
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Harpers' Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeders' Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harpers' "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 25
Cosmopolitan "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
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Review of Reviews	2 50	2 75

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IT'S UP TO PAPA.

"I would like to know," said the gruff old father to the young man who had been calling with considerable frequency, "whether you are going to marry my daughter?"

"So would I," answered the diffident young man. "Would you mind asking her?"—*Scraps.*

THE EIGHT-HOUR WATCH.

"What!" cried the labor leader, as he entered the house, "no supper yet?"

"No," replied the wife, calmly. "You will recall that I began work at six o'clock this morning."

"What has that to do with it?" he demanded.

"My eight-hour watch expired at two o'clock this afternoon," she answered.—*Chicago Post.*

THE CAT RESISTED DEEP WATER BAPTISM.

"A little boy I knew of in the West," writes Rev. Cyrus Townsend Brady, in the July *Ladies' Home Journal*, "belonged to a family who had trained him to believe in the deep water form of baptism, and was experimenting with the household cat and a bucket of water. The animal evidently did not believe in immersion, for she resisted, bit and scratched, and used bad language—in the cat tongue, of course. Finally, the little boy, with his hands covered with scratches, and with tears in his eyes, gave up the effort to effect the regeneration of the cat. 'Dog-gone you!' he cried—notice the choice of epithets in the use of the word dog—'go and be an Episcopal cat if you want to!'"

Light, air and sunlight are important factors in keeping the family and the house in a healthy condition. Nothing could be worse than the habit some people have of keeping the house in darkness from early morning till night. The house should be flooded with light and air for several hours each day,—July *Ladies' Home Journal.*

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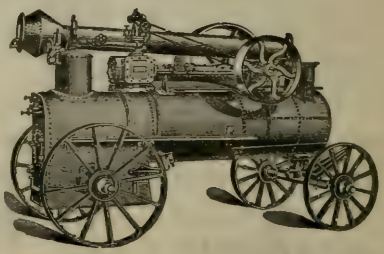
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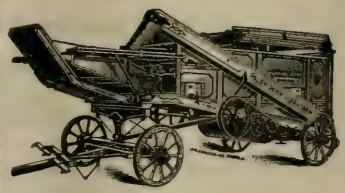
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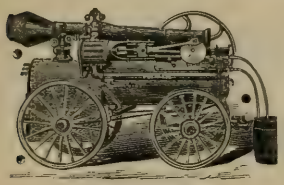
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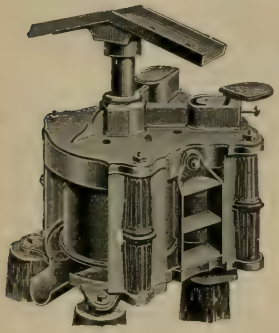
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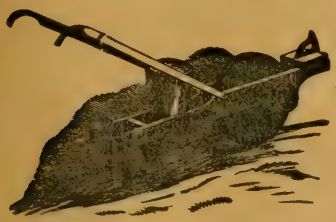
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J. F. JACKSON, Editor and General Manager.

Vol. 61. AUGUST, 1900. No. 8.

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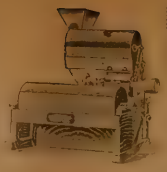
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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, August, 1900. No. 8.

Farm Management.

WORK FOR THE MONTH.

With the thermometer standing at 105° on the street and between 90 and 100 in the open field, it seems almost like an act of cruelty to sit down and deliberately lay out a course of work to be pursued on the farm. The only work any man ought to be required to do at this season of the year ought to be to rest and recuperate from the effects of one of the most trying months we have ever experienced. Fortunately for farmers, this is what most of them can afford to do for a considerable part of August if they have wisely spent the time since crop planting commenced. The hay, wheat and oat harvest is over, the grain threshed out, the corn and cotton crop is laid by, the tobacco crop is topped and laid by, and the summer forage crops are planted. What is most needed now is not work but rain. For a month past a very large section of the South Atlantic States has suffered from a severe drouth, with a constant high range of temperature, and as a result all crops are suffering and the yield bids fair to be largely reduced. In some sections of this State and North Carolina, we are afraid that the damage has progressed so far that rains now will have but little effect on the yield of the corn and cotton crops. They are bound to be short. It is at such a time as this that the value of deep plowing and perfect preparation of the land previous to the planting of the crop is most in evidence. Our normal rainfall is amply sufficient to secure good crops, but to ensure this, it requires to be husbanded in order to tide us over an exceptional drouth. In no way can this be done except by so deeply breaking the land, and so finely working it, as to enable it to hold the maximum of water. This can only be done before the crop is planted. The best that can be done afterwards is to keep the surface mulched with fine loose soil to prevent evaporation. We are glad to know that very many farmers now fully appreciate the importance of attention to these points, and practise what we have so persistently advised. As a result of this, we do not doubt but that the loss which will be sustained through the drouth will be much less than would have been the case in such a season a few years ago. But there is yet much room for improvement. Too many farmers are yet infected with the craze for planting many acres when they have only the force and capital necessary to enable them to plant and care for a few. This drouth should serve to remind them of their folly.

The area planted in corn is in excess of that harvested last year in nearly all the corn-growing States, and this is so in the Southern States, and especially in Georgia. The condition on the 1st of July in the South was better than at the same date last year, and nearly equal to the ten-year average; but there is no doubt but that since that date this condition has much deteriorated, and that the increased area will not mean now an increased crop. The results of the wheat threshing are most favorable as a rule. We have

heard of some excellent yields, as much as forty-five bushels to the acre in one case, and many of from twenty-five to thirty five bushels per acre. The price keeps firm, and we think the indications are that higher prices will rule during the fall and winter.

The sowing of millet to supplement the hay crop may yet continue. Hay is likely to sell well, and the substitution of millet, cow-peas, sorghum, corn fodder and oat and wheat straw for hay on the farm will likely be found to be profitable. We would urge that no opportunity be lost to increase the quantity of forage of all kinds as too often stock have to suffer in the winter for want of feed. A variety of long feed is always conducive to the well doing of stock.

German or crimson clover should be seeded at intervals all through the month. We do not advise that this crop should all be sown at one time, as it is so liable to be killed by drouth or a few days of very hot weather when just starting into growth. Seeded at intervals of a few days or a week, some of the crop is sure to make a stand, and this will compensate for the loss of the seed and labor on other plots which may fail. We have often known the crop to succeed well on stubble fields just cut in with the disc or cutaway harrow. The stubble seems to afford it the needful protection. We advise the seeding of oats with German clover, as they not only afford shade and protection to the young clover, but add much to the quantity of hay and grazing. Sow 10 lbs. of clover seed and three quarters of a bushel of oats to the acre. Sow the winter oat up to the end of September, and after that time sow wheat or rye, preferably wheat, until November, and then rye through November.

In this issue will be found an article on the Sand vetch, to which we invite attention. This forage plant is one of great value, and succeeds well usually.

Ruta bagas and turnips should be sown during this month, and turnips during September. An effort should be made on every farm to grow ruta bagas and turnips. They are almost invaluable where live stock of any kind is kept, and especially so for sheep. They are cooling to the system, are appetizers, and enable much inferior forage to be used with profit. Ruta bagas are best grown in rows about 2 ft. 6 in. apart, so as to permit of their being worked with a cultivator. The seed should be sown in a continuous row, using 2 or 3 lbs. to the acre, and the plants be afterwards thinned out with the hoe, so as to stand about 8 inches apart. They require the land to be in a good state of fertility, and both farmyard manure and acid phosphate may be used in liberal quantity when preparing the land, which should be made as fine as possible before sowing the crop. Turnips may be sown in rows (which is the best way to secure a large crop) or broadcast. If sown broadcast, German clover may be seeded with the crop, and the best turnips be pulled out, leaving the clover and the small turnips for winter and spring grazing.

The land should be got ready for sowing winter oats as soon as it will plow. To succeed with this crop, it should be seeded in September, so that a good growth may be made before the winter frosts come on. If the land be well covered with the oat plants, the frosts will be largely kept out, and winter killing be much prevented. The oat crop is at best an uncertain one in the South, as it is essentially a cold climate crop, but it is desirable to grow it, as the grain and straw are both very valuable for stock feed. If care be taken to seed winter oats in September, and afterwards to top dress them with farmyard manure in the winter, success may generally be ensured. The spring sown crop is more often a failure than a success, except in the mountainous parts of the State.

We again say, "Do not pull fodder." Let the corn alone until the grains are glazed, and then cut the crop down at the root, and set up in good-sized shocks to cure. In this way the whole crop can be saved, instead of wasting a large part of that which has cost money and labor to produce. Fodder-pulling is wasteful of time, of grain, and of feed.

Give yourselves rest during the hottest part of the month. Take the opportunity to visit your friends and neighbors, and see what they are doing. Gather together on each other's farms and discuss farming and better methods, or visit the cities and learn what the markets want.

PREPARATION FOR WHEAT SEEDING.

The wheat crop in the Southern States has this year been one of the best raised for many years, and this notwithstanding the fact that in the Gulf States considerable damage was done by bad weather during harvest. The growing of wheat is becoming more universal amongst the cotton planters, and generally throughout the South efforts are being made to at least grow to meet home requirements. This is as it should be. There is no reason whatever why every farmer in the South should not grow wheat to meet his own needs and a surplus for sale in his own local market. The South has for many years been almost wholly dependent upon the West for its wheat and flour. Whilst it is true that wheat cannot be grown

in competition with the West at a profit with the low yields common in the South, yet if our farmers would only seed their best lands, and would prepare the land better and sow as early as the weather would permit, and would utilize cow peas more freely as a preparation for the crop, we are satisfied that it would pay them to at least grow for their own consumption, and probably for some part of the consumption of the smaller cities and towns. We have a number of subscribers who have adopted this practice, and who are making from 25 to 30 bushels to the acre, and are doing this at a profit. The great mistake Southern farmers make is that they will sow land that is not of sufficient fertility naturally to make a wheat crop. Wheat calls for plenty of plant food and for land full of humus, so that it will hold moisture. A 30-bushel crop will take from the soil—

Nitrogen	45 lbs.
Phosphoric acid	22¾ "
Potash	28 "
Lime	10½ "

This food must be present in the soil in an available condition or must be supplied if the crop is to be a success. To supply such a quantity of food would call for 300 lbs. of nitrate of soda, 200 lbs. of 12 per cent. acid phosphate, and 50 lbs. of muriate of potash per acre, and this must all be available, or the deficit must be capable of being supplied by the land. It is rarely that a crop is capable of appropriating more than from 50 to 75 per cent. of the plant food supplied in a fertilizer. To make the fertility in the land available to supplement that supplied by the fertilizer will require both good preparation of the soil and an abundant supply of humus and moisture. From a consideration of these facts, it will be seen how impossible it is to grow wheat profitably on poor land.

Select, therefore, good land, and, if possible, land that has upon it a clover sod, or that has produced one or two crops of peas, or a crop of German clover followed by peas, or that has been liberally fertilized for the production of a crop of tobacco, or if the crop is to follow corn, as is now very customary in many sections where the corn has been grown on a clover sod, to which farmyard manure has been liberally supplied. The adoption of this system will enable considerable economy to be made in the application of nitrogenous fertilizers, which are the most costly. A crop of peas or clover will supply enough nitrogen to the soil to enable it to produce a crop of wheat with little or no nitrogen applied directly to the crop.

The preparation of the land when selected is a matter of the greatest importance. Wheat requires that the land should be broken deeply, and then, before seeding, that the soil below the first three inches shall have had time to become consolidated and firm again. In an experiment made in Kansas, land plowed on the 20th of July and not seeded until the 18th of September, produced 23½ bushels of wheat to the acre, whilst land plowed on the 3d of September and seeded on the 18th of September only produced 19¾ bushels. In the same experiment, land subsoiled six weeks before seeding produced a larger yield than land merely plowed in the ordinary way. Plow early and deep. Allow the land to remain undisturbed for a few days, and then harrow so as to break up the top three or four inches, and continue to harrow this surface soil frequently until the time for seeding, so that it shall become as fine and as free from weeds as possible. If the land be cloddy, or if too light and loose, the roller may frequently be used with great advantage in the intervals between harrowing.

Recently a subscriber wrote us to ask our advice as to sowing corn land with wheat without first plowing the land. She said, "Last year, with infinite labor, we plowed our corn land, harrowed and rolled it again and again. Our neighbor crossed his corn rows with the spring-tooth harrow just enough to lap fairly, ran down the length of the rows with a disc harrow, smoothed up a little with the spring tooth, then rolled, and followed the roller with the drill; sometimes did not even roll. His wheat looks as well, and came up better and quicker than ours."

Replying to this enquiry, we would say that we have always advised that, in the case of corn land and tobacco land intended to be sown with wheat, it is unnecessary to plow the same previous to seeding if the land received that deep and perfect plowing and cultivation which it ought to have done previous to the planting of the corn or tobacco, and if, during the growth of these crops, the surface has been kept properly cultivated. The lower soil in that case will, at the time for seeding wheat, be compact and firm, and yet not too closely consolidated to require further plowing. The surface three or four inches should be finely broken with the harrow and the roller, and the wheat may then be seeded with confidence. We have numbers of subscribers who have followed this course for years with perfect success.

The question of the fertilizer to be applied is one which has received much consideration, both here and in England. In both countries it has been conclusively proven that mineral fertilizers used alone give little increase; that nitrogenous fertilizers used alone do but little better, and that a mixture of both is needed to prove profitable. Where the crop is seeded on a clover sod or after a pea fallow, there is, as we have said, little need to apply a nitrogenous fertilizer. It is there already. If lime has been applied to the clover, there is but little need for potash. Where

these conditions are not present, then nitrogen, phosphoric acid and potash should be applied; but the nitrogen should only be applied in small quantity at the time of seeding, and be supplemented by a top dressing in the spring, after the wheat has commenced to grow, of from 150 to 200 lbs. to the acre of nitrate of soda. Ground bone or dissolved bone is probably the best source from which the phosphoric acid can be supplied, as it gives not only a high percentage of phosphoric acid, but also about 4 per cent. of nitrogen, which is sufficient to give the plant a start. From 200 to 300 lbs. to the acre should be applied. The objection to the use of this fertilizer is its cost, which is high compared with acid phosphate made from South Carolina Rock. We, however, think that this ought not to prevent at least the use of some bone. If it be desired to economize, then we would say use half bone and half acid phosphate. The phosphoric acid is supplied just as fully by the acid phosphate as by the bone, but it supplies no nitrogen. The potash needed may be supplied by either kainit or muriate of potash. If kainit be used, apply at the rate of 200 lbs to the acre. If muriate of potash, 50 lbs. to the acre. If the wheat can be top dressed during the winter with farm-yard manure, these quantities of fertilizer may be reduced one half. Phosphoric acid seems to be the dominant factor in a fertilizer for wheat. In experiments made at the Virginia Experiment Station, Prof. Nourse says: "The greatest yields of both grain and straw have been produced on plats fertilized with all three essential elements, but that the most effective of these has been phosphoric acid. Considered from a financial standpoint, the results obtained for the whole four years of test show that nitrogen and potash, used alone or combined, have on the Station soils regularly resulted in loss. Phosphoric acid alone has proven more profitable than applications of potash, phosphoric acid and nitrogen combined, though the yield per acre has been a little less. The greatest profit resulted from the combined use of phosphoric acid and potash."

Once again we would urge the most perfect preparation of the land. Plow early; plow deep. Harrow and reharrow until the surface three inches of soil is as fine as possible, and let the soil below this, to the depth plowed, be compact. One of the most successful growers of wheat in Kansas said recently: "Neglecting to plow early so that the soil will get thoroughly settled and compact is perhaps the cause of more complete failures than almost any other."

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

SAND VETCH.

Amongst the various crops which we have advised for forage crops there is not one which in our opinion promises to be of greater value than the sand vetch. We desire to impress this point upon the attention of farmers, especially at this season of the year, when preparation should be made for seeding the crop. We have most favorable reports from those who have grown it for the past two years both for use as a green forage crop and for hay. We have seen it growing and making a splendid yield of hay after having been pastured in the early spring, and, more surprising still, have seen it making a heavy crop when not seeded until late in the spring. The proper time to sow it is in August, September and October, though it is quite evident that spring seeding will succeed. It should be seeded at the rate of 30 lbs. to the acre, if sown alone, or, what is better, at the rate of 20 lbs. with half a bushel of oats, wheat or rye to the acre. The grain helps to hold up the crop, and makes it easier to harvest and easier to cure into hay. It is a more reliable crop than German or Crimson clover, as it is not so easily killed out by hot sun or drouth when just starting. Its growth during the winter months serves to prevent leaching of the soil, and it adds greatly to the supply of soil nitrogen. At the Alabama Experiment Station a special study has been made of the crop, and we take the following information from the report made there: "When cut just before blooming the yield of dry hay per acre was 3117 lbs.; when 5 per cent. of the blooms were showing, the yield of hay was 3705 lbs.; when in full bloom, the yield was 5780 lbs.; when seed pods formed the yield was 5463 lbs. The percentage of protein (muscle and flesh forming food) in vetch hay is higher than in any other of the leguminous crops, as red clover and cow-peas, and much higher than corn blades or fodder, whilst in the fat producing matter, it is nearly their equal. As a fertilizer and improver of the land it is of high value. The Alabama Station calculated that the nitrogen contained in the vines, stubble and roots from an acre harvested when the plant was in full bloom, would be equivalent to the nitrogen contained in 2571 lbs. of cottonseed meal, and that one week later it would be equivalent to 2890 lbs. of cottonseed meal. The total nitrogen content of the crop increases with the stage of maturity. In experiments made in growing corn on plats where either the entire growth of vetch, the stubble of vetch, or the entire growth of nearly matured rye, or the stubble of rye had been plowed under, the yield of corn in 1898 was at least 50 per cent., and in some instances 100 per cent., greater on the plats where vetch or vetch stubble had been plowed in than on the plats where rye had been grown. There was but

little difference in the yield of grain whether the entire vetch plant or only the stubble and roots were plowed under. When silage corn was grown the yield per acre on the vetch stubble plat was 2.75 tons less than on the plat where vetch vines, stubble and roots had been plowed under. This superior yield of silage corn resulting from plowing in the entire growth of vetch was more than offset by the 3600 lbs. of hay per acre, obtained from the vetch stubble plat. As a hog pasture nothing better can be grown, as it comes in early and holds out into the hot summer.

GRASS SEEDING.

Every year that passes seems to add to the importance of grass as a crop for the Southern farmer. The growing importance of live stock of all kinds as an element of profit in Southern agriculture, with the yearly increasing difficulty of securing an abundance of cheap labor to work in the cotton, corn and tobacco fields in competition with the mines and factories now becoming so large a feature in the development of the prosperity of the South, and the increasing demand for hay in the large cities and manufacturing and mining centres, makes grass growing for hay and pasture a factor in the development of the Southern farm which the farmer cannot afford to overlook. In 1887, the area of land in Virginia devoted to the production of hay was 362,219 acres. In 1899 the area was 534,603 acres. In 1887 the value of the product was $4,450,949. In 1899 the value *on the farm* of the crop produced was $6,027,646. In North Carolina, in 1887, the area devoted to the hay crop was 138,912 acres. In 1899 the area was 130,526 acres. In 1887 the value of the crop in North Carolina was $1,588,558. In 1899 the value was $1,977,469. In South Carolina, the area devoted to the production of hay in 1887 was 30,000. In 1899 the area was 144,354. In 1887 the value of the crop was $415,950. In 1899 the value was $1,813,954. In Georgia, in 1899, the value of the hay crop produced was $2,083,828. In the three States of Virginia, North Carolina and South Carolina, the crop of hay produced increased in value $3,363,612, comparing 1887 and 1899. The crop in the three States named, in 1899, was worth on the farm nearly $10,000,000, and this is almost wholly a cash asset, as the great bulk of the crop is sold in the Southern cities and towns. If to this be added the increased value of the land devoted to permanent pasture, after having been improved so as to produce the improved grasses, and the increased value of the improved live stock which these lands now carry, it will be seen what an enormous factor grass growing now is in the farm economy of the South. Where grass is grown for hay in conjunction with the various forage crops which we have so frequently advised—cow-peas, soja beans, sorghum, vetches, millet, and corn fodder—the hay is practically a surplus crop, and one that is most profitably produced and readily sold. On one farm which we visited in Southside Virginia in July, 300 tons of hay had, at the time of our visit, been cut and saved without a drop of rain upon it, and there was growing on the farm, besides a large corn crop, more than 100 acres of cow-peas, soja beans, vetches, and other forage crops. When these are all saved, the live stock of the farm, amounting to several hundred head of cows, horses and mules, can all be carried through the next winter without eating a pound of the 300 tons of hay saved, and hay is now selling at this farm at $18 per ton, and likely to sell for more rather than less before the year is out. We believe we are correct in stating that more than 300 cars of Western hay were sold in Richmond alone last year, and in all probability a like quantity was sold in Norfolk, with large quantities in the other cities of the State. Surely, with such a market at home, it will pay to grow hay for sale, and this can be done and yet the farm be improved by the keeping of stock, to be fed upon the abundant forage crops which we can so readily and successfully produce.

The months of August and September are, in the South, the best in the year for seeding land to grass. Once germinated, if the land is in a proper condition of fertility and tilth, the plants grow rapidly and make such a root growth as will ensure their standing through the winter and be in a condition in the spring to make a heavy crop of grass and hay the first year. And yet, notwithstanding these facts, many farmers make a failure in putting their land down to grass, even in these months. The causes of these failures are not usually hard to find. We propose to point out some of the most prominent amongst them, in the hope that we may thus assist farmers in avoiding them. The first, and perhaps most general cause of failure, is seeding upon exhausted land, or land in a poor state of fertility. Many farmers have got the idea that grass is a recuperating crop, and that when land has been so long cropped with grain that it fails to make a paying crop, it can be put down to grass and proceed to acquire fertility through the growth of that crop. This is entirely an erroneous idea. All the grain crops, even to the corn crop, are nothing more than crops of gigantic grasses. They all draw upon the land heavily and return nothing to it. The true grasses are exactly of the same character. They feed on the land and contribute nothing to its enrichment directly. It is true that when once a good sod of grass has been obtained, it indirectly conduces to the fertility of the land. It does this by shading it with its dense growth and by means of its

matted and extensive root growth, and adds vegetable matter to the surface soil by the decay and constant falling of its leaf growth. From this, it will be seen how unreasonable it is to expect a grass crop to succeed upon land which has produced grain crops until it fails to do so successfully. Grass requires rich land upon which to grow, and especially land rich in vegetable matter or humus, so that it shall be capable of retaining moisture. In the absence of these conditions, it is almost absolutely certain that a grass seeding will be a failure. A second cause of failure is frequently inadequate preparation of the land. Grass seeds are very small, and the germ of the plant is a very weak and tender sprout. To ensure its survival, it requires to be surrounded with conditions most congenial to its growth. These are a very finely broken soil sufficiently closely packed to hold moisture in the absence of rain until the struggling plantlet has sent forth roots sufficient to sustain its vitality, but yet not so consolidated as to be impervious to the fine hair-like rootlets. Farmers, in their haste to sow the grass seeds, neglect to harrow and reharrow and roll the surface of the land until it is in a condition to meet these requirements, and hence fail to secure a stand. A third reason why grass seeds so often fail is that sufficient care is not taken to rid the land of weeds and weed seeds. A weed crop and a grass crop cannot be grown together. Weeds are more vigorous, and have greater vitality than any cultivated crops. They are survivals in the race for existence, and capable, usually, of smothering out all other forms of plant life. Land infested with weeds should never be attempted to be set in grass. Even when land apparently clear of weeds is to be seeded, it should be plowed and harrowed fine some time before sowing the grass seeds. This will induce germination of such weed seeds as may be in the land. After these have germinated, the plants should be killed by harrowing and a further growth be induced to be killed in the same way. The neglect of this precaution accounts for many failures. A further reason why grass seeds so often fail to make a good sod is that farmers will persist in trying to grow both a grain and a grass crop at the same time. We are aware that this is a very old standing practice, but in our opinion it is none the less to be condemned, especially in the south. It had its inception in a climate very different from this. It came from England, where the atmosphere is moist all the year round, and where the scorching rays of the sun in summer are much less felt than here, even in an exceptionally hot summer, and in an average summer are never injurious to vegetation. Under such climatic conditions as these, and with land in a high state of fertility, it was not only possible successfully to grow a grain and a grass crop together, but was good farming to do so. Here, under our climatic conditions, the practice should be abandoned. We have tried both ways, and are satisfied that success can much more certainly be predicated by sowing grass seeds alone. At the present prices for small grain, there is not the same temptation to sow these crops with grass seeds as was formerly the case. A good hay crop will make as much money and more clear profit than a wheat or oat crop. Sown alone in August or September on well prepared land, rich in mineral fertility and full of humus, the grass seeds will make a growth before winter sufficient to cover the land, and will resist even severe frost and cold. If sown along with a grain crop, the grain plants, being stronger growing than the grass, will push ahead and commence to utilize the plant food in the soil for their growth and advancement. Once having secured this predominance in foraging for food, they will maintain it and stunt the growth of the grass plants, so that only in the event of a very propitious season will the grass plants be able to do much more than live. In the spring, and after the hot weather sets in, the grain crop will, with its greater root growth, exhaust the moisture from the soil and secure its existence at the expense of the grass crop. Then, when the grass crop has thus been badly used, to complete its ruin, the grain crop is cut off at the very hottest season of the year, and the grass perishes. Without the grain crop, the grass crop, having made a good fall growth, utilizes in the spring the moisture and plant food, covers up the land and shades it, thus preventing undue evaporation, and is thus able to endure without injury the hot weather, and the result is a fine growth and a crop of hay the first year. Seeded with grain, it is rarely possible to cut a grass crop until the second year. We cannot doubt which is the better course to adopt. Make sure of the grass crop if you attempt to grow it. Don't run the risk of failure for the sake of the problematical profit on a small grain crop. Even in the North and Northwest, where grass seeds cannot be sown until the spring, it is now becoming common to sow them alone and rely on the grass crop thus almost certain to be secured to make a paying crop.

We are also strongly in favor of sowing clover seed in the fall. In a very severe winter, it may be wholly or partially killed out, but, if sown early, it will make a strong fight for life. If it stands, a much heavier crop can be cut the first year, whilst if it is killed out, the spring gives a second chance for securing a stand.

The variety of grasses best to be seeded depends much on the character of the soil. For a permanent meadow, or even for a two or three years' ley, we are strongly in favor of seeding a mixture of several va-

rieties. They seem to help each other. One variety is upgrowing, whilst another is spreading and shading the land. The only case where we would seed a single variety is that of a rich piece of lowground, where timothy makes its best growth. Clear timothy hay is always in demand on the market, and hence it is worth while to grow it where conditions are suitable. On medium red clay upland, we would seed a mixture of orchard grass, perennial rye, tall meadow oat, and al sike clover. For a light loam, we would mix tall mea dow oat, orchard grass, Hungarian brome, and peren nial red clover. On alluvial land, subject to overflow, or wet, undrained land, we would sow red top or herd's grass, perennial rye, and alsike clover. On bottom lands, Italian rye grass will make an excellent growth and makes fine hay.

HELPING THE PASTURES.

The prolonged period (for the South) of drouth and high temperatures through which we have passed, and, unfortunately, are still passing, will have brought forcibly before stock-owners the importance of having forage crops to which recourse can be had to help out the pastures and prevent loss of flesh and milk in the stock. Those who have heeded our often-repeated advice to plant forage crops are able to face such a period as we are having with comparative equanimity. There is no reason whatever why cattle should suffer and pastures be ruined. Sorghum, or sorghum and peas, if planted in the early part of May, should have been ready for cutting by the end of June, and by this time (the middle of July) be in the best feeding condition. To one not accustomed to feeding these forage crops, it will be a matter of astonishment to learn how large a head of stock can be carried over a period of drouth with a small acreage of forage cut and fed in the pasture or in the house. The following report of an experiment conducted at the Kansas Experiment Station will be of interest in illustration of this fact:

On May 10, 1899, twenty one cows out of the Agricultural College scrub herd were divided into two lots of ten and eleven cows respectively, one lot to be fed on green soiling crops and the other lot kept on pas ture. Lot 1 was giving an average daily yield of about 207 lbs. of milk, and Lot 2 about 206 lbs., the average test being about 3.7 per cent. butter fat. Each cow was given what grain she could eat at a profit, the average being a little over 3 lbs. per day per head. The green feeds used were alfalfa, oats, corn, cane and Kaffir corn. The pasture was com posed of both prairie and mixed grasses. It should be noticed that timely rains made 1899 an exception ally good season for pastures

The following table gives the amounts of green feeds consumed by ten cows and the income per acre, after deducting the cost of grain eaten. Butter fat is figured at creamery prices and skim milk at 15 cents per 100 lbs.:

	Pounds.	Per acre.
Alfalfa, 74 days..	77,145	$25.26
Oats, 9 days.	12,225	6.81
Corn, 31 days..	38,695	22.79
Cane (sorghum), 15½ days	22,370	15 60
Kaffir corn (sorghum), 14½ days,	17,550	13.83
Average		$18.08

In a similar manner the pasture cows brought an income of $4.23 per acre.

From these figures, we find that it required an average of 116 lbs. of green feed per cow per day, includ ing what little was left as waste. It required .71 of an acre to support a cow on soiling crops 144 days. During the same period, it required 3.63 acres to keep a cow on pasture. It will be noticed that alfalfa was fed 74 days. This was from May 10 till August 1, except 9 days the fore part of June, when the oats were fed. Where alfalfa is properly managed, it can be made to produce green feed during the whole summer. The corn was fed during the month of August. Cane was fed the first half of September, and Kaffir corn the last half.

The pasture cows yielded the most milk by 6,618 lbs. and the most butter fat by 280 lbs., but consumed 1 232 lbs. more grain. The soiling crops brought an income above the cost of grain of $18.08 per acre, while the pasture brought only $4.23 per acre. Of the soiling crops, alfalfa gave the largest returns per acre; corn next, cane third, Kaffir corn fourth, and oats fifth. The average result shows that *it is possible to get over four times as much per acre by soiling as by pasturing.* This does not mean that soiling always pays. It will depend largely upon the cost of labor and the amount of pasture land a person may have. Not considering the amount of land used, our cows did the best on pasture.

Nearly every dairyman has experienced the shrinkage that comes in midsummer, when the pastures dry up and grass is scarce. It is at this time that soiling will pay, and pay liberally. In what better way can a person realize from $23 to $25 per acre for his green corn or green alfalfa? When the cows look over the fence with longing eyes at the corn, the efforts usually spent in keeping the cows out of the corn had better be spent in throwing the corn over to the cows. The green corn, alfalfa or cane growing alongside of the pasture will pay greater profits if marketed to cows in need of extra feed than if held and sold to the local grain dealer; and not only that, but it will keep up the flow of milk and increase the profits derived from dairying on dry feed next fall or winter.

ALFALFA GROWING.

Probably the plant doing most to revolutionize agriculture in the central West is alfalfa, and in his latest publication, "Forage and Fodders," Secretary F. D. Coburn, of the Kansas Department of Agriculture, presents a most complete and comprehensive article on this subject. The author is Prof. Geo. L. Clothier, a most careful student of alfalfa, and for

many years identified with the Kansas Agricultural College. He and the general interest in alfalfa have grown up together, and as Kansas has been and is the great alfalfa experiment station of the world, a recital of his observations and experiences should prove of inestimable value to all in anywise interested in this wonderful plant.

Pertinent excerpts from the article are presented herewith:

The preparation of the soil should rightly begin two or three years before the time of seeding alfalfa. If the land is so weedy that it cannot be cleaned by cultivation, it should be fallowed for one season prior to the seeding. If it is desirable to subsoil the land, this should be done a year before seeding, to a depth of 15 to 20 inches, and may be followed either by fallow or a cultivated crop. Time enough should intervene between the subsoiling and the seeding to allow the soil to settle and to store a bountiful supply of moisture.

The seed-bed should be as fine as an onion bed, and the subsurface be rather firm and well supplied with moisture. If the soil is deficient in humus, a liberal coating of barn-yard manure plowed under at the time of subsoiling will add greatly to its physical condition and thus help to start the young plants. If the soil is very sandy, the manure will be of great value in preventing the sand from blowing and in conserving moisture. A very sandy soil is not benefited by deep plowing or subsoiling. If the soil is heavy and it is not practicable to subsoil, it should be plowed to a depth of eight or ten inches several months prior to seeding. If the land is allowed to lie fallow after this treatment, or has been fall-plowed, it should be thoroughly disked every three weeks during the summer or autumn, as the case may be, to keep a dust mulch on the surface and prevent evaporation.

The time of seeding is of great importance. This should be determined more by the absence of unfavorable conditions than by the season. Alfalfa has been successfully sown in Kansas in every month from March to September. Where the ground is not weedy, spring seeding has been practiced with success. The cold rains of spring, however, when excessive, sometimes cause the young plants to rot off, as would be the case with the adult plant when submerged for two or three days.

The quantity of seed to sow per acre is a question of considerable importance also. The majority of successful growers advise twenty to thirty pounds. If the seed were universally good and the ground always well prepared, this would be grossly extravagant. A pound of alfalfa seed contains about 210,000 seeds. If ninety per cent. of them germinate, twenty pounds per acre would give 3,780,000 plants, or eighty eight per square foot. After nine tenths of the young plants have perished from crowding or accidents, we would still have an ample stand. From these facts one can readily find the reasons for difference of opinion among good farmers as to the quantity of seed to sow. As low as eight to ten pounds per acre have frequently been used with success.

The quality of the seed is another very important factor. Good, germinable seed should always be used. The percentage of germinability should be ascertained by a test before sowing. This is easily obtained as follows: Count out 100 seeds and place between two pieces of muslin. Invert a small dish in a larger vessel and pour water around it. Place the muslin with seeds on the inverted dish. Let one end of the muslin hang down into the water. Saturate muslin and seeds before putting them into the germinator and set the whole in a warm place. The sprouted seeds should be counted and discarded at intervals of two or three days until all have germinated that will do so. The number germinated will give the per cent. of germinability. This ought not to be less than seventy-five per cent.

The color of fresh alfalfa seed is a greenish orange-yellow. As it grows older it all slowly turns to a yellowish brown color.

Alfalfa may be seeded broadcast or in drills. It is preferable to seed with a drill having a press wheel attachment, because the depth of planting can be better regulated. The seed should be covered about one inch in depth, unless the surface be very dry, when a somewhat greater depth is admissible. A good method to secure a better distribution of plants is to sow ten pounds of seed, running the drill in one direction across the field, and then cross drill with the other ten pounds. If the drill has no grass seeder attachment, the seed should be mixed with about three times its weight of coarse corn-meal. When intended for a seed crop, alfalfa should be sown thinly. Thick sowing improves the quality of the hay, but the plant has wonderful ability to adapt itself to either thick or thin seeding. One good, stout, healthy crown has been known to produce 360 stems at one cutting. When seeding broadcast, the seed should be covered with a light smoothing harrow or with a brush drag. The majority of farmers seem to prefer broadcasting, presumably because they have less difficulty in getting the plants covered shallow enough than with a drill. The majority of grain drills are not properly manufactured to admit of the nicety of adjustment necessary in seeding grass seeds.

After the alfalfa has been sown in the spring, it will be necessary to run a mowing machine over the ground two or three times during the summer to keep down the weeds. The sickle bar should be set high, so as to injure the small young plants as little as possible. If the vegetable *debris* is so abundant that it promises to smother the young alfalfa, it should be raked up and removed.

In harvesting, mow down as much of the crop at once as can be handled in one day. Let it wilt in the swaths and then rake it into windrows to cure. If the weather is fine, it can be stacked from the windrow by using a sweep rake and stacker. If the weather is threatening, bunch the windrows and cock the bunches to allow it to finish curing. It should be put into the stack with just as little handling as possible. To avoid molding, I have advised farmers to store alternate layers of dry straw and fresh alfalfa hay together in the barn or stack. The straw need not form more than about one fourth of the total weight. I think this method especially applicable to the first crop in localities where old straw stacks can be easily acquired.

When possible, alfalfa should be stored under a roof, as it does not turn rain well. A cheap hay shed can

be built by setting telegraph poles in the ground braced by 2 x 6's, and putting a good shingle roof on the structure. The sides should be left open and the hay stacked under this shed in ricks. A stacker of some sort or other should be used, as it does not pay to hire men to handle the hay with a fork. They waste too much by shaking off the leaves, which are considerably better to feed than wheat bran, pound for pound Where a roof cannot be had, the hay should be stacked in high, narrow ricks and covered with long slough grass

Alfalfa should be cured and stacked, if possible, without being rained upon. No other crop is so easily injured by rain. Alfalfa hay, rained upon, is worth about half what it would be were it unexposed.

Harvesting alfalfa at the ri ht time and in the right manner very largely determines its feeding value. The majority of farmers wait too long before starting the mowing machine. Alfalfa should be cut for hay when one-fourth to one-half of the blossoms have opened. When let stand longer, many of the leaves fall off and are wasted. Mowing early stimulates the growth of the following crop. Allowing it to go to seed seemingly exhausts the plant for that season.

Alfalfa fed green, either as a pasture or as a soiling crop, has few equals in its nutritive value. In localities where there is no difficuly in getting a stand, the cheapest way to feed it probably is to pasture it. It should never be pastured until the plants are more than a year old. Owing to their liability to hoven or bloat, it is always risky to pasture cattle or sheep upon alfalfa. Before turning animals liable to bloat upon the alfalfa, give them all they will eat of some other food. Death from bloat is often very sudden.

SMALL GRAIN.

Editor Southern Planter:

Wheat, oats, rye and barley are usually called small grain. They all belong to the grass family. They constiture the chief articles of food for the human family, as well as the domestic animals.

Wheat and rye are sources of bread, and barley is useful in many ways. Oats furnish the best grain food for horses, as well as some very nourishing dishes for men.

In this country, wheat stands easily at the head of bread stuffs, Indian corn being next in rank. In this article I shall speak of wheat mainly, for, as a rule, the same treatment will hold good for the others. There is no good reason why the southern farmers should buy any of the small grains or their products. It is much more economical to grow them. I lay it down as a safe farm maxim, "That it is not good business for a farmer to buy what his soil will produce." There are some exceptions growing out of the farmer's capacity. If he does not know how to grow any particular crop, he had better pay the penalty of his ignorance by hiring somebody who does know how to grow that particular crop for him. But we can grow wheat almost anywhere, and we should do so.

HOW TO PREPARE FOR IT.

I say emphatically, break the soil deep, and the subsoil too, if it is hard and dry. Wheat roots will grow four and a half feet down into the earth, if given a chance to do so. Thus you see you furnish so much more feeding room for the plants by plowing deep. Soil broken twelve inches furnishes about ten times the feeding space it does when broken only four. You ask how this is done. Just this way. When you plow only four inches, there is a hard layer of earth, called hard pan, which practically prevents the roots from growing through and limits them to four inches. But when the plow breaks twelve inches, it gets below this hard pan, and permits the roots to reach the porous earth below, and go on down as deeply as they wish to go. As I have stated above, in such cases they will grow about four feet, or forty-eight inches. Four divides into forty eight twelve times. Thus we see the importance of deep breaking.

But there is another great gain. Plants are largely water, and cannot grow without water. The deep preparation enables the roots to reach the earth-water, almost always abundant a few feet below. The four-inch preparation does not do this. Hence, every little drouth injures the shallow plowed, but not the deep-plowed soil. Thus we have great gain, both in the food and water supply by deep preparation.

CLOVER AND PEAS.

Both the mechanical and chemical condition of the soil for growing small grain can be greatly improved by having grown a crop of pea vines or clover before the small grain. Either of these crops gather nitrogen from the atmosphere, and store it in available form in the soil. They also penetrate the soil deeply in all directions with roots which rot quickly, and leave the earth loose and filled with humus, just in the best possible condition for small grain to do its best. The shading, the decaying stubble, the porous soil, and moisture consequent, give a warm root bed through the cold winter. Thus winter-killing is largely prevented, and vigorous growth promoted. Repeated vigorous harrowing will now complete the mechanical condition.

SEEDING AND FERTILIZING.

Select some good sound seed, already acclimated, clear of foreign pests of all kinds. Soak well in a solution of bluestone, so as to kill fungi spores and microbes. Sow one bushel per acre. If put in the proper depth—about one and a half inches—this will give as many plants as an acre should have. Sow with a drill if you can. If you cannot, then by hand, and harrow in as above, one and a half to two inches. Use through the drill or spread broadcast four hundred or more pounds per acre of acid phosphate and

muriate of potash or kainit mixed thus: 400 lbs. acid phosphate, 130 lbs. muriate of potash (or kainit 400 lbs.)

This is needed to give health to the plants and fullness to the grain. The clover and pea vines will have furnished all the needed ammonia. Now roll the soil firm, and then run over with a smoothing harrow so as to prevent crusting, and you are ready to await results. And the results will not disappoint you. Particularly will this be true if you have selected the right time to sow. In the South, this time is from the 20th of September to the first of November.

Later will not make the largest yields or the heaviest grains. Wheat is a biennial, needing the fall season of one year to make the roots, and the spring season of the next year to produce the tops and the grain. If the rooting season has been cut short, the spring yield will be cut short, and *vice versa*.

J. B. HUNNICUTT.

FERTILIZING FOR THE WHEAT CROP.

Editor Southern Planter:

The "four crop" rotation—corn, wheat, and two years clover and grass—seems to be proved by long, good averages the best rotation system in ordinary farming. In detail, corn is planted on the grass sod with perhaps a little fertilizer in the hill, or with good farmers and soils subject to drought, an application of 600 pounds of kainit broadcast. The following fall the wheat is planted, and is fertilized as seeded with commercial fertilizer. The timothy seed is sown with the wheat; the clover the following spring. The third year's crop is the clover, and the fourth year the timothy hay ends the rotation. Fertilizer, in most cases, is used but once—on the wheat. It is expected that the clover will supply sufficient nitrogen for the other three crops in the rotation, but this it rarely does, especially as the clover itself frequently fails from lack of mineral plant food. As timothy follows the clover, the nitrogen suffers a severe attack before the grain crops come around.

It will be interesting to note just what plant food fair crops for all four years of the rotation will require. This is determined, of course, by the chemical analyses of the crops. The results per acre are as follows:

Crop.	Yield	Nitrogen.	Potash.	Phos. Acid.
Corn	70 bu.	110 lbs	78 lbs.	58 lbs.
Wheat	30 bu.	57 lbs.	30 lbs.	24 lbs.
Clover	4 tons.	210 lbs.	176 lbs.	44 lbs.
Timothy	2 tons.	129 lbs.	107 lbs.	39 lbs.
		506 lbs.	391 lbs.	165 lbs.

The quantity of plant food needed is rather startling, especially when we consider that nearly all that is used is applied on the wheat. In view of the fact that most farmers use very little fertilizer, is it any wonder that crop yields have fallen off? Of course, the point is often made that the refuse part of crops and the most of the grass is returned as manure. Practically, not one-half of the plant food in crops used on the farm goes back to the soil as manure. It is all important that it all *ought* to go back; as a matter of practical fact, it does not.

Now, few farmers cover their whole wheat lands with 20 tons of manure per acre, but if they did so, they would apply per acre about 200 pounds of nitrogen, 200 pounds of potash, and 90 pounds of phosphoric acid. Of course, if the clover field is liberally supplied with mineral fertilizers (potash and phosphates), its nitrogen may be added largely to the gain, as much of it remains in the stubble and roots. Even if all of it is counted, and added to the farm yard manure, the total is still below the needs of the crops. It is true that there may be some considerable gain from rain water, so that taking all in all, the nitrogen *may* possibly be made up, though we all know it isn't.

In the case of the mineral fertilizers, potash and phosphoric acid, the case is quite different. The rotation actually needs 390 pounds of potash and 165 pounds of phosphoric acid. An application of 20 tons of farm yard manure supplies 200 pounds of the one, and 90 pounds of the other, leaving a shortage of 190 pounds of potash and 75 pounds of phosphoric acid, *even* when the 20 tons of farm-yard manure are used. When only 10 tons are used, or even none, farming becomes a plain, straight gamble, with chances about equal to playing a sharper with loaded dice.

The crops actually make use of this 190 lbs. of potash and 75 lbs. of phosphoric acid, and to get that quantity, at least half as much again of both must be applied. It is impossible to realize on every pound of plant food given to the soil. We will not consider this point here, as the figures are large enough as they are. To *theoretically* keep up the soil in a four year rotation system, fertilizing only the wheat, at least 2500 lbs of a fertilizer containing 8 per cent. potash and 3 per cent. phosphoric acid, is needed. Of course, the fertilizer will be more apt to contain 3 per cent. potash and 8 per cent. phosphoric acid, but we are giving here what the rotation needs, and needs too at a minimum. Practically, about 4000 lbs. of the fertilizer should be used, not of course on the wheat alone, but distributed over the rotation. This is not a mere bold statement. The facts are given above, and the farmer anxious to know why he is going behind every year, can figure out the points for himself.

Moore Co., N. C. BRYAN TYSON.

[In the foregoing our correspondent takes no account of the vast stores of phosphoric acid and potash in the soil, a store which analyses of soils in nearly all the States has shown to be more than sufficient for the production of maximum crops for an untold number of years. It is true that much of this is in an unavailable condition, but it is the province and business of good farming to make it available as the needs of the crops call for it. This can be done, and is being done, on every well managed farm without the application of commercial fertilizers; though, when used with wisdom and in a rational course of husbandry, their use results in a quicker recuperation of the soil and availability of the inert mineral constituents. In an address made by Prof. Jordan, of the New York Experiment Station, before the "New York Farmers," on "Fertilizers and their Application," he said, and said most truly, "The existence of commercial fertilizer should be no excuse for the lazy farmer, as I am sure they have been to some extent. The fact that it is possible to procure plant food ready for immediate use should be no excuse for wasteful and careless methods of handling and developing the resources of the farm. *It is possible to maintain the farm in a high state of fertility without using a pound of commercial plant food.*"—ED.]

LEGUME MANURING.

Editor Southern Planter:

To the farmer or planter the word legume means simply any plant belonging to the clover family, such as the various clovers, cow peas, Canadian field peas, beans, lucerne, or alfalfa, etc. All these plants possess the power of taking nitrogen from the air, and changing it into such form or condition that it becomes available as plant food. Legumes store this nitrogen in their substance only. They enrich the soil simply by making a growth of substance fairly rich in nitrogen as plants go, and directly or indirectly this substance finds its way back to the soil as manure.

Legumes or clovers enrich the soil only in fertilizer nitrogen, as this class of plants, or any other class for that matter, cannot add to the soil a single pound of potash or phosphoric acid not already taken from the soil in the shape of the crop itself. There is no potash in the air in the form of gas, nor any phosphoric acid. The nitrogen which legumes convert into plant food exists in the air in inert forms—that is, in such form that it is useless as plant food. The clover plants, through the aid of certain lower organisms, take this nitrogen from the air, and combine it with oxygen, making thereby a substance which is suitable as plant food. So far as is now known, only the legume family of plants possess this property.

From the above, it follows that nitrogen may exist in such a state or condition, that though it may be present in abundant quantities, plants cannot make use of it. In effect, much the same may be said of potash and phosphoric acid. As these two plant food elements exist in the soil naturally, they are of little use to growing plants. Plant food must be soluble in the water of the soil, in order to be available as plant food. Now, the natural soil may contain enough potash and phosphoric acid to grow a hundred crops, as shown by chemical analysis, yet fail to grow one. This is because this potash and phosphoric acid is locked up in the soil in rock particles which are insoluble in water, hence the fertilizer cannot take such form as to be useful as plant food.

The importance of this latter point is that legumes or clovers cannot assimilate nitrogen unless certain quantities of potash and phosphoric acid are present in the soil *in available form.* As legumes store up nitrogen, they form vegetable growth. The nitrogen is a part of this growth, and the quantity of nitrogen stored depends directly upon the quantity of this growth; but this vegetable growth cannot be made without the proper amounts of potash and phosphoric acid to accompany the nitrogen. Hence, to *grow* fertilizer nitrogen through the use of legumes potash and phosphoric acid are part of needful soil preparation, quite as much as the seed.

It may be well to look up here the relative quantities of potash and phosphoric acid needed. The following table shows the pounds of potash and phosphoric acid required for every 100 pounds of nitrogen stored up by the legumes. Every 100 pounds of nitrogen in each of the following crops requires for its production the following quantities of potash and phosphoric acid:

Crop.	*Potash.*	*Phos. Acid.*
Clover	84 lbs.	21 lbs.
Scarlet clover	97 lbs.	26 lbs.
Cow-peas	69 lbs.	22 lbs.
Alfalfa	88 lbs.	17 lbs.
Canadian peas	69 lbs.	26 lbs.

It will be observed at once that the potash greatly exceeds the phosphoric acid. As a matter of fact, commercial fertilizers commonly show quite the opposite proportions. It is true that phosphoric acid tends to take forms in the soil which place it beyond the reach of growing plants. At the same time, equal parts of phosphoric acid and potash certainly restore the balance between the two elements, and even more than restore it.

There is another point to touch upon here. It is quite impossible for plants to take up all the plant food applied to the soil; indeed, the best authorities practically agree that fifty per cent. of efficiency is fairly good work. This means that to obtain 100 pounds of fertilizer nitrogen from the air, the follow-

ing quantities of potash and phosphoric acid must be used :

Crop.	*Potash.*	*Phos. Acid.*
Clover	168 lbs.	42 lbs.
Scarlet clover	194 lbs.	52 lbs.
Cow peas	138 lbs	44 lbs.
Alfalfa	176 lbs.	34 lbs.
Canadian peas	138 lbs.	52 lbs.

The point arises, will it pay to use such quantities of plant food merely to grow fertilizer nitrogen, as suming that the phosphoric acid is made equal to the potash. The following table explains. Potash and phosphoric acid cost the farmer about 5 cents per pound ; nitrogen, 14 cents. The first column shows what the plant food costs at most, while column 2 shows the value of the nitrogen gained, to which must also be added the value of the potash and phosphoric acid contained in the crop.

Crop.	*Cost.*	*Gain.*
Clover	$16.60	$19.25
Scarlet Clover	19.40	20.15
Cow-peas	13.80	18.45
Alfalfa	17.60	19.15
Canadian peas	13.80	18.75

The table shows that under the most unfavorable conditions legume manuring pays merely as a fertilizer problem. Of course the value of the crop as forage, or for other purposes, is an additional value gained. Certainly it is important to note that this legume nitrogen is not *all* gain. It costs something, and if the potash and phosphoric acid are lacking, or improperly proportioned, growing legume fertilizer very easily becomes unprofitable. The farmer or planter must do his own thinking on this subject, and mix it with a good grade of common sense.

R. Garwood.

RANDOM NOTES.

Editor Southern Planter :

Mr. Franklin's article on cow-peas and other legumes, in the July number, is right along the line on which I have bestowed some thought. A farmer recently wrote to me that, on an old field he had taken in last year, his cow-peas made a very poor growth, notwithstanding he gave them a dressing of acid phosphate and kainit. This year, on the same land, he says that he has a fine crop, and he attributes it to the fact that he used a fertilizer containing a small percentage of nitrogen. He therefore arrives at the conclusion that a pea fertilizer should have some nitrogen. Well, the nitrogen probably did help some in the start, but the crop would doubtless have been better this year had he used no fertilizer at all. That is, it would have been better than the last year's crop, simply because the soil is getting better infected with the nitrogen-collecting microbes. In the case of a field where no peas have ever been grown, it will often pay well to get a little soil from an old pea field and scatter it lightly by hand over the surface. A few bushels of such soil per acre would do the work. In many parts of the South, crimson clover invariably fails the first time it is sown, but is very apt to succeed the second year. One reason for Mr. Ruffin's success was that he was a great believer in lime, and his soil was well sweetened with lime, which enabled the microbes to grow, as they will not in a sour soil. Then, too, in a soil abounding in organic matter, the process of nitrification of the organic matter is hastened by the presence of lime, for it has been found that these low plants which we call microbes have a power which no green plant has, in that they can get carbon from calcium carbonate to make up their tissues, and are thus less dependent on what green plants have organized.

Noting what you say in regard to alfalfa, I would suggest that lime seems to amount to a specific for this plant. Two years ago I visited the grass testing farm of Peter Henderson & Co., at Hackensack, N. J. I was shown a fine piece of alfalfa. They told me that it was very feeble till one day, in hauling lime past it, some dropped on the corner of the plot, and at once that corner sprang into luxuriant growth. They then limed the whole plot. Shortly after coming home from the North, I was at the fine farm of Col. J. S. Carr, near Hillsboro, N. C. There I saw that the field of alfalfa was rather feeble, and I advised the manager to lime it. I was past the field a week ago. The first crop had been cut, and the whole field was a luxuriant mass of green, promising a second cutting soon. The great reason for the success of alfalfa in the arid regions is the fact that the lime has not been washed down in the soil. In sections with a mellow subsoil, I have no doubt that alfalfa has a great value. My chief objection to it is that it is too permanent, and interferes with a proper rotation of crops, and unless it is kept up by artificial applications it will finally reduce the fertility of the soil by robbing it of mineral matter. I greatly prefer an annual legume for our purposes.

As your Florida correspondent has told about how they raise peanuts there, it is now in order for our Virginia peanut editor to tell him he knows nothing about it. In the multitude of counsellors there is wisdom.

Mr. Wiggins says that the abundance of streams and springs of water in Virginia is a great blessing, and so they are. But even blessings may at times prove troublesome. When I was in the Virginia mountains and bought large bunches of cattle every

fall for feeding, it was a great nuisance to have a man drive a herd of thirty cattle into my own branch at the foot of the hill and let them fill up on water before going on the scales, and thus make me pay three cents per pound for water out of my own stream. That branch was entirely too convenient.

Your remarks about velvet grass are in line with what I have always found it in Maryland. There we always regarded it as a useless weed. But as we come Southward this grass takes on a better character, and here the cattle are fond of it; and down in Louisiana one large farmer says that it is the best grass he can grow, after trying a great many varieties. Climate has a good deal to do with these things, for our Bermuda loses value rapidly as it goes North.

W. F. MASSEY.

WANTED!

A Better System of Farming in the South.

Editor Southern Planter:

In a trip through the Southern Coast States I am forcibly impressed with two things: One, the fact that these States hold the best farming country in the world; and second, no land is more neglected and misused.

There is to day, July 15th, in Georgia more cotton under twelve inches high than there is over. There are more acres of corn which will not yield ten bushels per acre than there are which will yield over that. Only a slight improvement can be found upon this up to Virginia. This is an unnecessary disgrace to what might just as well be a paradise. The remedy is in the hands of the tillers of the soil almost without money and without price. In the midst of this cotton a foot high, I also saw cotton five feet, and giving an assurance of over a bale to an acre. The reason of the difference was that one tract of land was deeply plowed and properly manured, and the other was the reverse.

It is difficult to find a two-mule plow in use, the cot ton seed is sold, and few cow-peas are grown; the re sult is, 100 lbs. of cotton per acre or less. Upon a few farms, however, the new departure has come. The cotton seed is not sold, but composted or crushed, and returned to the soil, which is plowed six to eight inches deep, and the result is a bale to one and a half bales of cotton per acre, and at least fifty bushels of corn

If any planter wishes to prove the practicability of this, let him thoroughly work into an acre of ground this fall 1000 lbs. of crushed cotton seed or 500 lbs. of cotton seed and five loads of stable manure, or turn under a good crop of cow-peas, by plowing six to eight inches deep.

The claim that cow-peas and deep plowing sour and ruin the land may be true when the cow-peas are green and the turned up soil does not have time to mellow and become aerated, but the soil is the foundation upon which the farmer must build, and the depth of fertile soil is the farmer's bank of deposit, and the deeper the deposit the better.

It is a chronic complaint that there is too little moisture to make crops grow. But shallow plowing and not manuring will not help that. The climate must be made the most of and the best of until a practicable system of irrigation is prepared. Scientific experiments go to prove that there is very much less suffering from drouth when ground is deeply plowed and fertile than when poor and shallow plowed. The presence of decaying animal and vegetable matter in the soil is a grand source of moisture. It gathers and holds moisture, and rich ground suffers much less than poor. Chemical fertilizers and cotton-seed meal should only be used with stable manures or cow-peas.

Any plot of ground, large or small, upon the East coast may be made to yield double its present ordinary products by the use of a two horse plow, cow-peas and cotton seed in a rational manner.

New York. S. S. BOYCE.

ARTICHOKES AGAIN.

Editor Southern Planter:

I see a correspondent is still hammering away at Professor Massey about his perverseness on artichokes. I regard Massey as the soundest, ablest, and most practical common sense writer on agricultural matters that I have ever read after, but he is "dead wrong" in his views upon artichokes. Some years since, I read of them in a Kentucky paper, and corresponded with an advertiser of them, causing me to order some for a relative. They were planted on light, thin land—which is not the kind of soil best suited to them—and his shoats and stock hogs ran on them from December to April, showing such thrift and growth as his hogs had never before made through the winter and early spring, and as a consequence they went ahead finely all through the summer after having such a start.

Now, I "bossed" that job. In the spring (in May), when the sprouts were a foot high, they were turned under, and later chufas were planted on the ground. Along in the summer, I went out to that farm, and in the acre of chufas there were seen about *three* artichoke stalks about four feet high. The young fellow said, "as they had come there, he had let them stand;" "but," I said, "you want to show to the country people here that you can grow them on a place one year, and get entirely clear of them the next." Then he chopped those stalks down with a hoe, and thereafter

there was not one in that plot. He has continued planting them during five or six years with similar experience, and thinks they are the best winter food for the welfare of his hogs he knows of. His land makes but a small yield, about 350 bushels (estimated) per acre. But another friend got seed from him and planted in rich land, and 750 to 800 bushels was estimated as the yield on the latter's place. I think on real good bottom loam, and with a good season, 1000 bushels is easily possible. The professor holds on to his first say against artichokes with "dead game," but he is—on this one thing—wrong.

I wish somebody would send him a bushel with directions how to do with them, so that he can see how it is himself. Perhaps the kind used now may be different from those he could never get rid of in the Maryland clay.

Tennessee. J. V.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Fertilizer for the Wheat Crop.

Please inform me through *Southern Planter* what fertilizers are necessary, and the amounts of each fertilizer needed, to produce a crop of 35 or 40 bushels of wheat per acre on a pea stubble. My land has made an average of 15 bushels per acre for the last three years, following a pea crop each year, with an application of 200 lbs. acid phosphate, 100 lbs. cotton meal, and 50 lbs. muriate potash, broadcast and harrowed in with a spading disk harrow, the land having been broken with a two-horse plow and subsoiled. My land produces an excess of straw, it growing from four to five feet tall, and the straw is very coarse.

Laurens Co., S. C. ROBT. C. DAVIS.

If I were to try to answer your question specifically, and told you that by applying a certain quantity of a certain kind of fertilizing mixture you could get the crop you name, I would be very properly set down as an agricultural quack, and any man who would tell you that the application of a certain amount of fertilizer on that land would give the result you desire would be a humbug. You can find out by experiment what no one else can tell you—that is, what kind of plant food your land particularly needs. If you have read what I have written here in the past, you will have seen that the one thing I have opposed most earnestly is the gambling on the chances of a crop from the application of this or that fertilizer mixture. Your land makes an average of 15 bushels of wheat per acre, and you want to grow more and want to double the crop. I do not believe you can do this at once by the application of any kind of commercial fertilizer in any kind of quantity. You say that with the application you have been making, your land produces an excess of straw, and still you add cotton seed meal where the peas have already given you more nitrogen than the wheat needs. You will get better results by leaving out the cotton seed meal and increasing the amount of the acid phosphate and potash, or rather the amount of the acid phosphate, for the 50 lbs. of muriate is enough. I would make it 300 lbs. acid phosphate and 50 lbs. of muriate per acre. If you still get too much straw, it would be better to put a corn crop in between the peas and the wheat. You say nothing as to the rotation of crops you have been practicing. The proportions of the plant foods I suggest may not double your wheat crop, and probably will not, for that is to be done by a gradual improvement of the soil for wheat, and more than all—more than any fertilizer of any kind—on the careful and complete preparation of the soil. Plow early enough for the land to get well settled before seeding time, and harrow, harrow, harrow, till the soil is as fine and compact as you can make it. This fining and compacting of the soil will do more for the increase of the crop than increasing the fertilizer. Practice a good rotation, and keep developing the capacity of the land for wheat, and you may finally reach your desired crop. But you will never do it by any sort of plant food mixture all at once.

W. F. MASSEY.

Forage Crops.

On a small farm I am frequently short of pasturage for my horses and cows. I have a 3 acre lot adjoining my barn; the soil is somewhat loamy, and will produce 40 bushels of corn per acre. What forage crops and in what rotation would you suggest for the 3 acre lot that would give the most green food for six horses and four cows? What fertilization is necessary to keep the land in present condition without being expensive? G. W. B. NALLE.

Culpeper Co., Va.

I believe that the best plan to make that lot yield the most green food during the summer will be, in the first place, to get it into clover as soon as possible. You do not say what crop is on it now. But assuming that it is now in corn, I would, as soon as the corn is cut, put the land in good order and seed to clover at once. If you get a good stand early in the fall, it will go through the winter well and give you a fine growth next spring. The heaviest crop of clover I ever grew was on a similar lot, where the seed was sown in July at the last working of the corn. The next spring, assuming that you get the stand of clover, I would cut and feed till half the heads are ripe and then make the remainder into hay. Then plow one-half of the

lot and plant it in corn. Cut this as fast as it comes into tassel and silk for feed, and use the second crop clover on the other half to mix with it. Sow clover seed among the corn at the last working. The spring following plow the other half for corn after mowing the early growth of clover from both, and repeat, or plow the old clover the first thing in spring and plant corn a few rows in succession as fast as the previous rows come off till the whole is planted. The first planted rows will come in for use far ahead of the last, and the rows can be replanted at once, sowing the whole in clover that summer. This last plan will give you a longer continuation of feed. Alternate the corn and clover in this way, and give the clover every four or five years a light dressing of lime, and I think you will find that the productiveness of the land will increase without fertilizers. But it will pay you to give the lot all the manure you can spare. For your lands, there are no forage crops equal to clover and corn. For the cows alone, I would work the whole lot in corn for ensilage after cutting a crop of clover from it, and would then sow it back in clover to cut the next spring before planting the corn for silage. In this case, the clover should be made into hay at once. But what you are after, I suppose, is getting green food while pastures are short, and the alternation of clover and corn will come as near doing the work as anything I know. W. F. MASSEY.

Mixing Kainit with Hen Manure.

Do you think it a good plan to mix kainit in hen manure as it is taken out of the hen house and stored in barrels? I clean houses out about three times a week and sprinkle dry dirt on the dropping boards, so you see it has a considerable amount of dirt in it. I thought of sprinkling a little kainit in it each time I put some in the barrels. Let me know what you think about saving this manure to be used on corn next spring. HENRICO SUBSCRIBER.

No possible harm can come from the mixing of the kainit in the hen manure, and it will not only tend to preserve the manure in better condition, but will add some potash to it. It will, through its saline nature, increase the absorptive power of the soil mixed with it to hold on to the plant food. Manure of any kind, which has to be kept for any length of time, will be greatly improved by the addition of kainit.

W. F. MASSEY.

Improving Land in Tidewater Virginia.

Last winter I bought a farm here in Tidewater Virginia, and have started in for improving it. I have taken your advice and sowed 22½ acres of my poorest land in cow peas, bushel to bushel and a half per acre, and am having marl dug, and this fall intend scattering it over this cow-pea stubble (where growth is heavy shall cut, but where light shall let die on land) and plow under. The land is a medium heavy, choco late soil, and had a fair growth of cornstalk before I plowed it; now, would it pay me to so sow this in oats and wheat this fall, ten acres of which I wish to get in shape for permanent pasture, and at what rate per acre would you use marl? I also have a ten acre field of a sandy nature, rolling, and inclined to wash, which I learned has been in peanuts for the past two seasons, and last fall was in winter oats, which were a failure, and as it was too late to prepare for cow-peas after oats were off, would like to have your advice as to what I had better do to bring this land up, as I would like to turn it to pasture. Kindly answer these questions through *Southern Planter*.

Surry Co. E. H. WILLIAMS.

I have no doubt that you can get a remunerative crop of wheat after the peas if you give the land a liberal dressing of acid phosphate and potash, say 400 lbs. acid phosphate and 25 lbs. of muriate of potash per acre. This will be likely to insure a stand of clover on the land if sown in the spring, or sown with the wheat this fall. Once get a stand of clover and the future of the land is assured with any fair treatment. Marl is rather an indefinite term. If your marl is like that on the Pamunkey river you can use it as liberally as you please. If it is merely shell marl, its value is mainly in the lime carbonate it contains, and you should be cautious about using it too heavily on land deficient in organic matter. On this take the advice of those around you who have used this marl. It would seem to me that the place for the marl is on the young clover of the second spring. I would not advise the seeding to permanent grass till you have gotten the land up to a fair tilth and have deepened it by subsoiling if the clay is hard and near the surface. You had far better use the marl too lightly than too heavily, so the experience of your neighbors on like land is worth more than anything I could tell you without knowing the particular soil and its real condition. I hardly think that you would have found it too late after winter oats to get in cow-peas, especially the Whippoorwill, as you could have sown them up to the middle of July with good chance of success. I have sown the Black pea at that date and had them succeed. In the present state of the field I would give it a dressing of acid phosphate and potash, and sow a mixture of hairy vetch and crimson clover, using ten lbs. of the clover and ten of the vetch per acre. I have not yet tried this mixture, but from what I have seen of the habit of the two plants I feel sure that it will be a good mixture, and that the clover will give the bottom and bulk that the vetch lacks. I expect to try it this fall. You should sow the seed about the last of August. You can either pasture these in late winter and spring, or cut them for hay and follow with corn, among which sow peas.

W. F. MASSEY.

Rye Fallow.

Do you think a rye fallow beneficial to land? Please answer through the *Southern Planter*.

Mecklenburg Co., Va. E. R. DOGGETT.

We have never been strong advocates of rye fallows, and never advise seeding rye until it is too late to seed any other crop. The only good purposes served by rye are to grow some vegetable matter to make humus in the soil, to conserve plant food remaining unutilized by the crops grown in the summer, and to prevent washing of the soil. Rye adds nothing to the soil except carbonaceous matter, which has come from the soil. We are aware that some farmers claim that rye is a good preparation for an Irish potato crop and for a corn crop, but we have never been able to understand why, except in so far as it had saved the plant food, which might otherwise have leached away.—ED.

Value of Sawdust as a Fertilizer—Cornstalks as Manure.

In the July number of the *Southern Planter*, "Exodes" recommends rotten wood and chips for humus. What is your opinion of rotten sawdust? We have on this farm several old saw mill sites, and an unlimited quantity of the rotted dust. I have used corn stalk manure on a piece of heavy clay land planted in corn, and I have a fine stand, and though the drouth is very severe in this locality, it is doing fine. When you take into consideration that the farms of Virginia which have been rented out since the war, have been "robbed" by "shifting farmers," don't you think hauling the cornstalks to the barnyard profitable? I intend enlarging the barn lot this fall, and to devote considerable energy to increasing the stock of cornstalk manure for next spring. When living North, I read the *American Agriculturist*, but the *Southern Planter* is superior in every way, as its articles are written in such a way that the reader cannot misunderstand. BACON.

If the sawdust is really rotted and black, and is piled over winter mixed with lime, it may have some value. But any such method of getting humus into the land involves more labor than the material is worth. It might do for a little patch, but there is no way for getting humus in the land on a large scale equal to growing the humus making material over the whole land, and thus save the great labor of handling a big lot of stuff with little intrinsic value compared with its bulk. I had rather have one good growth of peas or clover on the land, than all the rotted sawdust you could haul at twenty times the expense.

Of course hauling cornstalks is profitable, provided you cut the corn at the ground when glazed, and cure it in the shock, and then cut up or shred the fodder, stalks and all, and feed them to cattle; but to haul a lot of stalks into the barnyard merely for their manurial value, would be a waste of labor, and they had better be plowed under where they grew. Put them in shape to feed, and feed them to cattle, a d thus get them into the manure in a profitable way.

W. F. MASSEY.

Fertilizer for Cotton—Action of Microbes on Plant Food.

Please answer the following queries: 1st. Have I not seen it stated somewhere by yourself that kainit was the best source of nitrogen for the cotton planter? (My latitude is 18 miles S. E. of Columbia, S. C.) I usually put up my compound for fertilizing cotton six weeks or two months before using, but I wish next year to use some nitrate of soda with the cottonseed meal so as to give the young plants a "send off." 2d. Will not the nitrate of soda cause some of the acid phosphate to revert? 3d. If there is much rain, will I not lose the good effect of the nitrate of soda before the plant takes it up? My formula is 700 lbs. of cottonseed meal, 1000 lbs. acid phosphate, 300 lbs. kainit. 4th. What proportion of nitrogen should come from nitrate of soda; one third? How many pounds of meal must I drop, and how many of nitrate of soda substitute? (One hundred pounds of good nitrate of soda ought to be equal to two hundred and twenty of good meal—100=220.) 5th. How can I get at the equivalent of ammonia to nitrogen? 6th. Please inform me what are the chemical changes that cottonseed meal passes through before it gets into the condition to be taken up by the plant? What does it first combine with, and what does it become by the combination, and what other combinations and changes take place till it gets into the condition of, and is as immediately available as nitrate of soda?

Thousands of dollars are lost every year by farmers for want of a little knowledge of agricultural chemistry and the proper adjusting and proportioning of commercial fertilizers. Here is where the "Stations" help us. Perhaps half the money spent for fertilizers might just as well be thrown into the fire. I am sure this is the case with corn. We are groping in the dark!

7th. Is the aphis that infests cotton the same as that on the cow-pea, and on the young shoots of the grape and rose? I heard an old planter assert that "*lice*" were always worse on his cotton that followed *peas*. Is the aphis an *evidence* of unhealthiness in t e plant? Rosarians affirm that the aphis *will not* attack a healthy plant, and that its presence is an evidence of an unhealthy condition. My observation inclines me to that opinion as to the rose and perhaps the grape.

Richland Co., S. C. "SUBSCRIBER."

1. Kainit does not contain a particle of nitrogen, and hence cannot be used as a source of nitrogen. It has about 12 per cent. of potash in it in the form of a sulphate, but this is associated with so large a percentage of the chloride of sodium or common salt that the potash acts as a chloride or muriate

2. Nitrate of soda is the most readily available form in which you can get nitrogen. There is nothing in it that will cause the reversion of phosphoric acid.

3. If applied too early in the season, you may lose a good deal of the nitrogen, since a nitrate is so

readily soluble that plants must take it at once or lose it. It would be better to use it as a top dressing alongside the rows after the cotton is up. I would put in 100 lbs. of the nitrate of soda and make the C. S. meal 600 lbs. It is true that the percentage of the nitrogen in the nitrate is far higher than in the meal, if you get the use of all of it, but I would rather keep the whole than reduce any further than in the same proportion.

4. I should say that four fifths of the nitrogen should come from the cottonseed meal for a crop that grows like cotton all through the hot season.

5. Multiply the percentage of ammonia by 0.8235. Thus, if the ammonia is 2 per cent., this would be equal to 1.647 per cent. of nitrogen.

6. It is hard to find the exact process in the soil of any substance, but so far as is known, the first thing is the complete decay of the meal through the action of bacteria that attack all organic matter in the soil. Then the ammonia is released and another form of bacterium takes it and changes it into a nitrite, which is as far as this form can go. The work is then taken up by another form of nitrifying bacterium, and changed into a nitrate either of lime or potash or magnesium, as may be present in the soil when the bacteria form nitric acid there. Green plants take nitrogen only when it is in the form of a nitrate, and after the microbes have done their work this is the result. This is the reason why nitrate of soda is so quickly available. It is already in the form the plants want it. The microbes in the soil are nitric ferment plants, and the result of their growth is nitric acid, and nitric acid being present it at once seizes on some base in the soil and forms a nitrate. It has been found too that these microbes can get the carbon they need for their growth from the carbonate of lime, which no green plant can do. Hence the value of lime in a soil abounding with humus on which the bacteria or microbes grow and feed. Therefore a soil filled with humus is a living soil, and one in which the humus has all been used up is literally a dead soil, because the microbes have been starved out. You are right as to the great waste of money in fertilizers that are misapplied. I am preparing a book which is intended to explain these things in a simple way, and hope to have it out the coming winter.

7. There are a wonderful variety of forms among the aphis family of insects. The aphis that infests the pea and the grape is a different species from that on the cotton. Conditions of the weather have more to do with the attacks of the aphides than the condition of the plant. They soon make an infested plant look sickly, but they will attack the most healthy plant as quickly as any. Tobacco is the great preventive of the attacks of any aphis. Our growers saved their early green peas this season by dusting with tobacco dust from the smoking tobacco factories. But anything of this kind must be used as a preventive, for nothing will do much good after they get well at work on the plants. W. F. MASSEY.

Improving Land for Permanent Pasture, &c.

I have two fields—one now in corn, the other in timothy. The former I wish to improve as soon as possible and make a permanent pasture; the latter I wish to improve and put in corn next season. What course would you advise me to pursue in order to accomplish this? Both fields are naturally fine soil, but are now somewhat run down. D.

Albemarle Co., Va.

The field now in corn, which you wish to make a permanent pasture of, will be better put in shape for this purpose by sowing in wheat this fall after the corn is cut; the next summer, after cutting the wheat, sow it in peas. Cut the peas and cure them for hay, and then prepare the stubble by a good, deep plowing and subsoiling, and put it in fine order and sow a mixture of orchard grass, red top and Kentucky blue grass in September or October, either with fall oats or alone. If you use plenty of seed, it will be better to sow the grass alone, and in order to get a dense sod at once, use 10 lbs. of orchard grass, 10 lbs. of red top and 10 lbs. blue grass seed, with a few pounds of white clover per acre. To get a good pasture, you cannot be too liberal with the seed. You will stand a far better chance, too, if you give the peas a good dressing of acid phosphate and muriate of potash. This will make you a heavier crop of forage and more nitrogen for the grass. On the timothy sod, which I suppose is the part you say is somewhat run-down, I would break the sod after the hay crop is cut, and prepare the land and sow in August crimson clover, and rye as a shade crop for the clover. During the winter, get out all the manure you can and spread on the clover, and turn all under for corn in the spring.

W. F. MASSEY.

Alfalfa Growing.

I am thinking of sowing five or six acres to alfalfa clover or Lucerne, and I write to ask if it will be safe to sow the land to wheat this fall, and in April sow the alfalfa seed, just as we in the Valley do with the common red clover seed. I see that some persons recommend sowing oats in the spring with the seed, as a nurse crop, and some advise sowing it alone, but I have not yet seen anything said about sowing it with the wheat which was sown in the fall. I have a lot very rich, and if I can get a stand of alfalfa on it I wish to point to it as an object-lesson for my fellow-farmers in my neighborhood to study.

Any information will be thankfully received.

Augusta Co., Va. SAMUEL FORRER.

We do not think it would be advisable to attempt

the seeding of alfalfa in the spring on fall sown wheat; indeed, we do not believe in the practice of seeding grass or any of the clovers on a small grain crop in the South. If alfalfa, clover or grass is wanted, it should be seeded alone, and in the South invariably in the early fall. The practice of seeding the clovers and grasses in the small grain crops is one which, whilst adapted to a moist, mild climate like England, where it originated, is not adapted to this country, where the winter is often very much more severe than in England, and where the grain crops mature and are harvested several months earlier in the year than in that country. To complete their growth and mature the grain so early, they draw so heavily on the land as practically to starve the clover and grass crops and reduce these to such a weakened condition that when the grain crop is removed just at the season of the year when the power of the sun is greatest, they are very largely killed. Hundreds of thousands of dollars worth of clover and grass seeds are in this way wasted every year which, if sown alone in the fall, would make fine stands of grass and clover. Alfalfa should always be sown in the early fall in the South. In our last issue we gave particulars of the growth of a crop in Chesterfield county in this State, which was seeded on the 22d August last year, and cut the first time on the 16th of May this year. This crop was grown on *upland*, and not as we were made to say, on *lowland* Since we wrote the article, we have taken an opportunity to inspect this field, and found it a heavy growth ready for cutting again in the first week in July, and doubtless good for a third crop later this year. Surely such a return is far better than to attempt to secure a crop in the wheat, which at best can only be expected if it survives the cutting off of the wheat, to make in its first year a small crop in the fall, or pasturage. With such a heated term as we are having this year, we doubt very much whether it would live at all. The growth of alfalfa is usually very spindling for the first few months. It seems to devote its energies rather to making root than top growth, and hence is very liable to be killed by heat or drouth. From our own expe rience with the crop, and from what we have seen of the crop mentioned in our last issue, we do not doubt but that alfalfa can be successfully grown in the South, but we shall not expect to see that success achieved by sowing it in a small grain crop. In this issue will be found an article on "Alfalfa Growing," from the pen of Professor Geo. L. Clothier, of the Kansas Experiment Station, who has had great experience with the crop, and whose advice may be followed with confidence.—Ed.

Spring Cabbage.

I wish to put out some cabbage this fall for early spring crop. Will you kindly inform me through the *Planter* which is the best kind of seed to sow for this purpose, at what time to sow the seed in bed, and at what time the plants should be set out.

Appomattox Co., Va. Subscriber.

The seed should be sowed from about the middle of September to the middle of October. It is best always to make two or three small sowings rather than one large one, as the plants are subject to mishaps from climatic and insect causes. The best variety to sow for the first early crop is the Early Jersey Wakefield, of which nearly every leading seedsman claims to have a special strain. This makes a conical solid head, and is very compact in growth, so that a large number of plants can be grown per acre. An ounce of seed should produce from 1500 to 2000 plants. For a second early crop, sow the Flat Dutch variety. The seed should be sown in rows on a well-prepared, fairly rich bed, and be sown thinly, so as to secure stocky plants. Let the rows be five or six inches apart, so that the crop can be worked to hasten growth and keep down weeds. The plants should be ready to set out in November. The land for the crop cannot be too well prepared nor be made too rich.—Ed.

Cabbage Worms.

I see that in the last number of your paper you did not fully answer Mr. W. W. Green's request as to how to kill cabbage worms. "Bug Death," made and sold by the Danforth Chemical Co., and recently advertised in your columns, is a certain remedy.

Moore Co., N. C. Frank L. Holcombe.

Sheep for Crossing on Native Ewes for Lambs and Wool.

What breed of sheep would you advise to cross on our natives to bring a 65 lb. lamb by June 1st and return a good wool clip. something to stand hard winters and poor treatment?

Will you also give me the name and address of the secretary of the association of the breed you advise?

Conditions are such here that it does not pay us to breed simply for either wool or mutton, as buyers pay us the same price for our wool regardless of grade, and the same price for lambs regardless of breed.

Ashe Co., N. C. N. H. Calhoun, Jr.

We have found no breed of sheep so suitable for crossing on native ewes in the South as the Shropshires. They are so prepotent that they mark their distinguishing characteristics on the produce of the ewes at once, and two or three crosses will make the lambs almost indistinguishable from pure bred Shropshires to any one but an expert. Again, the cross brings early lambs of a strong healthy type, which are quickly ready for market, and the wool crop is of a desirable quality. Shropshires seem especially easy to acclimatize in the South and retain their size and good qualities, where other breeds, and especially the long-wooled breeds, deteriorate quickly. Mr. Mortimer Levering, of Lafayette, Ind., is the Secretary of the American Shropshire Association.—Ed.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

The work of harvesting and storing or marketing the spring planted crops and fruits is the principal one which will engage the attention of truckers and gardeners during this and following fall months. In the doing of this work, exercise a careful discretion. Let all defective and faulty produce be carefully culled out, and be either reserved for home use or be shipped to market apart from the perfect products. Grade the perfect products into large and small, and ship separately. Very much of the complaint which is made by shippers as to prices obtained is directly referable to their own carelessness in making shipments. Mixed lots of defective and perfect goods are almost always sold at the price of defective goods. Large and small shipped together sell for the price of small, or very little more The markets are broken down and demoralized by the large quantities of defective and faulty produce shipped. For first-class goods, perfect in every way, there is always a demand at good prices. If shippers would only exercise discretion and keep defective goods at home, where they can be utilized either for immediate family use or for feeding to stock, they would be well paid in the better prices for which the perfect goods would sell. Especially would this be the case with fruit of all kinds.

As the crops are gathered, clear the land of all trash, and either put into a compost heap or burn. Break the ground at once, and either plant fall crops, if intending to raise them, or seed to German clover, and thus conserve the fertility in the land and smother down the weeds.

Potato onion sets may be set out during the latter part of the month. Set out in rows about 12 or 18 inches apart, so as to allow of cultivation with horse power. Make the land rich, and plant about 6 inches apart in the rows. Do not cover the sets more than one inch deep.

Fall cabbage plants may be set out towards the end of the month. The land should be made rich, as the cabbage is a gross feeder. A fertilizer rich in potash should be used, say not less than 6 or 8 per cent. of potash. The great difficulty in growing the crop is the worms. The plants should be encouraged to make a rapid growth by cultivation and by the application, after they have just started to grow, of a top dressing of from 100 to 150 lbs. to the acre of nitrate of soda. Sow this broadcast in a gentle rain or just previous to a rain. This will enable them to outgrow the worms. If worms get on the plants, dust with air-slacked lime and salt mixed together.

Broccoli plants may be set out for fall cutting. Treat like cabbages.

Fall kale may be sown during the latter part of the month.

Ruta bagas and turnips should be sown.

English peas and snap beans may be sown for a fall crop. Whilst there is considerable uncertainty in making a fall crop of these vegetables, yet if frost holds off until late, they will frequently make a fair yield, and the market price is always a good one.

Lettuce seed may be sown for plants to raise under glass, or in a sheltered spot where they can be protected in case of hard weather. The production of winter lettuce under glass is a profitable business when well managed. There is a demand for the crop all winter.

Land should be got ready for planting out strawberries. Plow deeply and then harrow finely, so that the weed seeds may germinate. Kill the weeds as soon as germinated by harrowing again and again. In this way the plot may be cleared of weeds, and is then ready for planting. The use of potash as a fertilizer for strawberries is very highly commended by a number of the largest growers. Some of them apply as much as 500 lbs. of kainit or 150 lbs. of muriate of potash to the acre. These heavy applications should be well worked into the land before setting out the plants. If farm-yard manure is used, it should be well rotted, so as to be free from weed seeds. Be careful to select varieties that are known to do well in your section for a main crop. A selection of different varieties should be tested in small plots to guide in planting another year.

The main crop of celery should be set out this month. Plant in double rows 4 feet apart, so as to allow room for earthing up the crop. Set out the plants about 6 inches apart in the rows and 6 inches between the two rows. Set in this way, two rows may be earthed up at one time and with one labor. There are two or three self-blanching varieties for which much is claimed; these, of course, should be set out close together—say, 6 inches apart each way—so that they may blanch by shading each other. Celery requires very

heavy manuring to make a success of it, and if irrigation is possible, it will be found most advantageous.

The young orchard and vineyard should be seeded down to German clover or a mixture of clover and rye, and all cultivation of the land should now cease so as to check growth and permit the young wood to ripen.

THE VIRGINIA APPLE CROP.

Editor Southern Planter:

Since sending you the report you asked for of our fruit prospects last month, I have had opportunities of getting rather more extensive information, and, as a result, would be obliged if you would allow me to correct it by saying that I believe the winter red apples will be 50 per cent. of a full crop, while the statement as to Albemarle Pippins that I sent last month is about the same, viz.: 20 per cent. of a crop at the outside.

WALTER WHATELY,
Sec. & Treas. Va. State Horticultural Society.

LATEST SUCCESS OF THE VIRGINIA STATE HORTICULTURAL SOCIETY WITH THEIR APPLE EXHIBIT AT THE PARIS EXPOSITION.

Editor Southern Planter:

In addition to the second prize recently noted in these columns, the Virginia Horticultural Society has just captured a first prize for its fruit exhibit at the Paris Exposition. The information was sent to President S. B. Woods, of the Horticultural Society, by Mr. William A. Taylor, who has the Paris exhibit in charge, and who is Acting Pomologist of the United States Department of Agriculture.

In addition to this, the Virginia apples were included in the United States exhibit, which contains forty varieties from fourteen different States, and which captured the first prize also from the Jury of Awards in the International Contest.

Speaking of our famous Albemarle Pippins, Mr. Taylor writes that they were "in excellent condition on June 27, and were much admired both by the jury and by the dealers and consumers who inspected the exhibit. The outlook is favorable for an immediate and increased demand for American apples as the result of this exhibit."

Mr. Taylor expresses the belief that Virginia, through the efforts of the State Horticultural Society, will reap its full share of the benefits.

Mr. Woods states that the credit of making the exhibit is due more to the Hon. George E. Murrell, Secretary of the Virginia Horticultural Society, than to any one else. Mr. Murrell, who lives at Coleman Falls, Va., has been very active in getting up this exhibit, which has reflected honor and credit on our State, and which will be of material benefit to all our farmers, by increasing the foreign demand for their products.

Much credit for this Virginia success is also due to the U. S. Department of Agriculture, and proves, if proof was needed, how greatly it benefits the farmers of the country.

If the fruit growers of this State cannot now recognize the service this Society has done them all by thus bringing Virginia apples into such prominent and favorable notice, they must be dense indeed. I beg to remind them that the efforts of our Society are in the interests of every fruit grower or horticulturist in the State, and that so far we have had everything to do that has been done by the private subscriptions of our members. As the benefits accrue equally to all, I respectfully urge our claims for the personal and financial support of every fruit grower.

WALTER WHATELY,
Sec. & Treas. Va. State Horticultural Society.

AN EXPERIMENT IN STRAWBERRY GROWING.

Speaking at a meeting of "The New York Farmers," Mr. Collingwood gave the following report of one of the most remarkable experiments made in strawberry growing: A Mr. S. R. Divine, of Sullivan County, N. Y., has a large pond near his strawberry field. Being desirous of having strawberries very late in the season, he tried keeping plants in cold storage and then transplanting them, but this was not a success. He then decided to ice them just where they were growing in the field. He took one quarter of an acre of handsome plants, and as soon as the ground was frozen, covered them with about two inches of straw. On January 22nd, when the ground was covered with a foot of snow, he hauled a layer of ice 16 inches thick and put it right on top of the snow all over the field. On February 5th a second layer of ice 14 inches thick was put on over the first, and later 7½ tons of buckwheat straw was scattered on top of the ice. Thus there was in addition to the snow, 2½ feet of ice and 10 inches of straw on top of the strawberry plants. It required 680 tons of ice to cover the quarter of an acre. My little friend, the strawberry, is cold-blooded, and thoroughly enjoyed this overcoat. By the middle of April it was found that the frost had left the ground, but the ice remained on the field up to June 23rd, when a few small pieces were to be found. At that time the last of the straw was taken off and put between the plants. Then the plants began to grow in a wonderful manner. The first ripe fruit was picked on July 16th. On August 18th they were still picking, and for two weeks later, or nearly to the 1st of September, small pickings of fruit were obtained. By fruiting some of the earlier varieties at their natural season, and uncovering part of the iced plants at various times, a constant supply of fresh fruit was obtained for 90 days. Thus the plants were kept asleep, and when they finally woke up they proceeded to business fully rested after their long nap. Mr. Divine estimated that these strawberries cost 22 cents per quart, calculating the ice at its average selling price. Nearly 1000 quarts of beautiful strawberries were produced on the quarter of an acre. They came at a time when there was absolutely no competition, and sold readily at 40 cents a quart. Mr. Divine thinks that if he had put another layer of ice on the field, he could have retarded the fruit a month later.

Live Stock and Dairy.

THE EARLY LAMB CROP.

This is the time of the year when steps should be taken towards ensuring a crop of early lambs. The early lamb is the one that brings the most money, and Southern farmers, especially Virginia and North Carolina farmers, are most favorably situated for meeting this demand. The climate of the two States is so mild that there is no difficulty in having very early lambs under almost natural conditions. Even in December and January it is rarely so cold and stormy as to compel the housing of the ewes both day and night. The most needed is usually a good dry shed open to the South. The facilities for reaching the Northern markets with the lambs are also so good that there is every inducement to take up the business. We know numbers of farmers who every year sell their early lambs at prices running from $5 up to $10 per head, and which lambs have cost them but little more feed, care and attention than those sold later in the year at $3 and $4 per head. Such lambs as these can only be had in the North and West with much greater cost and care. If you have not yet secured your ewes be on the look out for them at once, and see that you select young native ewes not more than two or three years old, and having a healthy, lively look. These may usually be had from Southwest Virginia, Western North Carolina, Tennessee and West Virginia. The buck should be a *pure bred* one, preferably either a Shropshire, Dorset or Southdown. Choose a well formed, solid bodied sheep, with short legs and a small well shaped head. Let him be not less than a year old, and preferably two or three years old.

Having selected the buck, the next question is, how to treat him. He should be kept away from the ewes at least two or three weeks, and be fed so as induce flesh (not fat), and a strong nervous condition. Let him have a good pasture, and be fed once a day a mixture of flax seed meal peas, oats, and bran say from one to two pounds per day. As the time arrives for service, give a half teaspoonful of any good preparation of acid phosphate, once or twice a week. When service is desired, take the buck and rub his breast and belly with red chalk or ochre, coloring it well, then turn a few of the ewes with him at night and it will readily be seen in the morning whether he has served any of them. Make a note of those served, and it will then be known when to expect lambs and from which ewes. Do not let the buck run continuously with the ewes. Much more certain results will be attained by keeping him with them only during the night, especially in the South, where the days are so hot at this season of the year. Do not require the buck to serve too many ewes. A yearling buck should not be required to serve more than 25 ewes. An older buck may serve 50.

To bring the ewes into condition for breeding is often a more difficult task early in the year than to fit the buck for service. If the first crop of lambs has been allowed to run with ewes until June or July, it will often be difficult to get the ewes to accept service until the fall. To induce early breeding, the lambs should be taken away not later than May, and after the milk has been dried off, by keeping on short pasture and dry food, during which time care should be taken to avoid injury to the udder by milking out the milk two or three times until it ceases to flow ; then the ewes should be turned onto a good pasture and be fed oats, peas and a little bran once a day. Feed from one to two pounds of the mixture per head. The object is to get the ewes into good flesh but not too fat. When in this condition give half a teaspoonful of acid phosphate once or twice, or give one or two grains of cantharides, or the equivalent of the tincture of cantharides, to each ewe, and select the ewes in best condition, and turn them with the buck in small lots, say of eight or ten. This course of treatment will rarely fail to secure the desired end after once the ewes are in good thriving condition. After all the ewes have been served, turn the buck with the flock, so that he may serve again such ewes as fail to conceive. Keep the ewes in good thriving condition whilst carrying their lambs, but do not let them become fat. Let them have the range of a good pasture with plenty of shade and pure water.

SALE OF SHORTHORNS IN VIRGINIA.

In this issue will be found an advertisement from Major W. W. Bentley, of Weldon, Pulaski county, Va., announcing the sale by public auction of a draft from his splendid herd of Shorthorn cattle. We have the greatest confidence in advising the attention of live stock men to this sale, as the animals to be offered are of the finest breeding of one of the oldest established herds in America. They comprise representatives of the Renick Rose of Sharon, Young Mary and Josephine families, upon which Scotch topped bulls have been used for the past seven years. Amongst the bulls used have been Knight of Weldon, now at the head of the celebrated herd of G. S Ward, of Hawarden, Iowa ; Champion Cup and Gypsy Jack. These animals stand at the top of Scotch breeding, and the young stock, the result of their use, are individually splendid animals and cannot fail to make fine

records, both on the farm and in the show ring. They have not been pampered or got up specially for sale, and are therefore in prime breeding condition, and ought to be eagerly bid for by all who desire Shorthorns of the best type—and there are no better cattle than Shorthorns.

HEREFORD CATTLE.



GOLD STANDARD 71879.

Gold Standard 71879.—This Hereford bull, the property of Mr. E. M. Gillet, of Bacon Hall Farm, Md., has been shown at most of the Eastern Fairs and through the South. He has never been beaten as a calf, yearling or two year old. He is closely related to Champion "*Dale,*" the bull that sold for $7,500 at Mr. Naves' sale. Both bulls have "Earl of Shadeland," 41st, as grandsire. Having a double cross of the blood of Imported "*Lord Wilton,*" toned with the blood of "*Anxiety,*" 3d, he shows splendid depth, weight, girth, and a typical Hereford head and horns. His calves show great quality.

OFFICIAL RECORDS OF HOLSTEIN-FRIESIAN COWS FOR JUNE, 1900.

Editor Southern Planter:

In the month of June just closed, 31 official records have been reported to me. *The phenomenal record of the month is that of a three year old heifer at 590 7 lbs. of milk testing 20.822 lbs. butter fat, equivalent to slightly more than 26 lbs. of butter at 80 per cent. fat to the pound.* A retest was not ordered, for the very good reason that during her test, a portion of the time she was under the eyes of Professor H. H. Wing, of Cornell University Station, who assures me that the test is beyond any possible suspicion of incorrectness. Summarized, these tests show the following results: Nine cows averaging 7 years 27 days old; 40 days after calving: Milk, 446.7 lbs.; butter fat, 15.222 lbs.; equivalent in butter 80 per cent. fat, 19 lbs. 0.4 oz., or 17 lbs. 12.1 oz. 85.7 per cent. fat. Two cows averaging 4 years 1 month 14 days old; 215 days after calving: Milk, 402.2 lbs.; butter fat, 13.300 lbs.; equivalent to 16 lbs. 10 oz. butter 80 per cent. fat, or 15 lbs. 8.3 oz. 85 7 per cent. fat. Six cows averaging 3 years 3 months 9 days old; 63 days after calving: Milk, 404.1 lbs.; butter fat, 13.164; equivalent to 16 lbs. 7.3 oz. butter 80 per cent. fat, or 15 lbs. 5.7 oz. 85.7 per cent. fat. Fourteen cows averaging 2 years 1 month 5 days old; 77 days from calving: Milk, 279.2 lbs.; butter fat, 9.334 lbs.; equivalent to 11 lbs. 10 7 oz. butter 80 per cent. fat, or 10 lbs. 14.2 oz. 85.7 per cent. fat.

S. HOXIE.

DORSET LAMBS.



We have pleasure in reproducing a picture of a group of Dorset lambs, the property of Mr. E. M. Gillet, of Bacon Hall Farm, Md. These lambs were dropped in November last, and the picture was taken in April. They show remarkable development and size for their age. The Dorsets are popular as producers of the very earliest lambs, and the ewes are remarkable for their milking qualities. Mr. Gillet says his next crop of lambs will begin to arrive this month. These will make grand Christmas lambs, when the price is the highest.

MORE ABOUT SHEEP.

Editor Southern Planter:

Some farmers who have never kept any sheep, and never intend to keep any, may think the writer, in saying so much about them, is making "much ado about nothing," but there is no subject which can be presented for their consideration of greater importance than stock raising, because stock is always in good demand at fair prices, and the fertility of the farm cannot be maintained without stock of some kind to devour the coarse products and supply the all important manure. Agriculture is the most prosperous where live stock is raised in connection with the tillage of the soil. Except in some particular localities, there is no kind of stock that will pay the farmer better or improve the farm faster than sheep.

The Western farmers generally call the pig the "mortgage lifter" and the most profitable animal on the farm, but swine are more subject to disease than sheep—whole droves dying in a few weeks with cholera. Western farmers are beginning to turn their attention to sheep. Last December the writer saw at Montgomery, in Illinois, forty thousand sheep in sheep barns, which were being fattened for the Chicago market. As fast as one lot was sold another was brought to fill their places.

The excellence of the flock, however good, can only be maintained by breeding from the best, or retaining only the best for breeders. It was on this principle that Bakewell formed his celebrated breed of sheep. It is the only principle by which our domestic animals can be raised to the highest degree of perfection of which they are capable

Breeding "in-and-in," as it is called, or breeding from animals nearly related, has given rise to much controversy, and the matter is still undecided. Writers on physiology generally condemn the practice, but the most successful breeders in the world have followed it in establishing their flocks and herds. Charles Colling used his favorite bull, whose name was "Favorite," indiscriminately upon his own offspring down to the third generation with excellent results. The rule of the old breeders was to breed from the best, regardless of relationship. They usually bred from their own, because they could find none better nor so good. To firmly establish and indelibly imprint some particular virtue in a breed, it has been found necessary to breed in-and in, but there is no doubt the practice can be carried too far. Sir John Sebright tried many experiments in breeding in-and in with dogs, fowls and pigeons, and found in many cases the offspring degenerated. Sir John Sinclair experimented with pigs, which he carried on so long and so far that the females almost ceased to breed, and when they did breed the progeny were so small and delicate that they died as soon as farrowed. To breed from the same race, but of different families, is now the practice of most breeders. Crossing two different breeds has sometimes been advantageous, but an attempt made in Scotland to improve the wool of the mountain sheep by using Cheviot rams resulted in a complete failure.

It is now admitted that the male has a greater influence on the character and form of the offspring than the female, and for this beneficent provision of the Creator we should be duly thankful, as it enables us to bring the domestic animals to the highest state of perfection much sooner than if the law had been reversed. The secret which controls the formation of sex is probably too deeply hidden to be discovered by human intelligence. Some experiments made in France by M. Giron would seem to indicate that a flock served by very young rams would produce more female lambs than males, and that a flock served by strong, vigorous lambs, four or five years old, would bring forth more male than female lambs. His theory was that the sex of the product would depend on the greater or less relative vigor of the individuals coupled. He claimed that, by the practice of his theory, he obtained 66 per cent. males to 34 per cent. females. A record kept at the sheep fold of Blanc, in France, showed that at the commencement of the rutting season, when the ram was in full vigor, 76.8 per cent. of the lambs begotten were males. After the ram had become weakened by frequent exertion, 83.24 per cent. of the lambs begotten were females.

When the ram is placed with the ewes, his breast should be "ruddled" (as the Scotch call it), or smeared with red paint, so that it can be told where his attentions have been bestowed and a record kept, so that the owner may know when lambs are expected and be on hand to attend to their welfare. "He who uses the most care," says an English writer, "will have the largest gains." Sir Anthony Fitzherbert, an English law judge, who wrote a book on "*Husbandry*" in 1534, says: "Sheep is the most profitablest cattle that a man can have." His grammar is not quite correct for the present day, but I think his statement was true then and is true now, with this one qualification: they must have excellent care. Most other domestic animals will stand neglect better than sheep. In ancient times, sheep received greater attention from their keepers than they do now. To prevent them from straying, from being stolen or killed by wild animals and dogs, it was the practice of shepherds to watch with their flocks all day, and, during the lambing season, at night also. The tendency of most sheep to ramble where there are no fences renders it necessary for them to be attended by a shepherd and his trained

dog. In the sheep ranches of America and Australia, at the present day, it is as necessary for the shepherd to attend to the sheep as it was in Bible times.

When a farmer has selected the breed which he thinks will be the best for his locality, it should be kept pure and uncorrupt. The reason is that, by so doing, and raising fine animals, sales can often be made for breeding purposes for five times as much as the butcher can afford to pay. Superior rams of a desirable breed have often been sold for $100, and sometimes as high as $500. The flock master's constant aim should be to improve his flock, and with the proper painstaking he will be successful. There may be a point beyond which our domestic animals cannot be improved, but that point has not yet been reached. It was once thought that trotting a mile in three minutes was the utmost a horse could do, but the time has been constantly reduced until the wisest horseman cannot tell where the limit may be. Breeders should adopt the writing master's motto:

"Every line and every letter,
Strive to make a little better."

J. W. INGHAM.

HOW TO SECURE CREAM OF A REQUIRED PER CENT. OF FAT.

Editor Southern Planter:

With a cream of a known per cent. of fat and milk of a known per cent. of fat, the problem is to mix cream of any required per cent. of fat between the per cent. of fat of the cream and the per cent. of fat of the milk. As, for example, with a cream of forty per cent. fat and milk four per cent. fat, to mix a cream twenty five per cent. fat (say forty pounds), what per cent. of the forty must be forty per cent. cream and what per cent. must be four per cent. milk?

The formula would be as follows:

The per cent. of the four per cent. of milk to use.

- Subtract the per cent. of the cream wanted from the per cent. of the cream given.

Divide this remainder by—

- The per cent. of the cream given less the per cent. of the milk given divided by 100.

The per cent. of the cream to use is 100 less the per cent. of the milk as determined. For example—

40 per cent. cream given
25 per cent. cream wanted

15

Fifteen is divided by

40 per cent. cream given
4 per cent. milk given

$36 \div 100 = .36$

$15 \div .36 = 41.6$, which is the per cent. of milk to take.

100 less $41.6 = 58.4$ = per cent. of cream to take.

Suppose forty pounds of 25 per cent. cream is wanted: then—

$41.6 \times 40 = 16.6+$ = lbs. of 4 per cent. milk to take.
$58.4 \times 40 = 23.3+$ = lbs. 40 per cent. cream to take.

To verify work.

$16.6 \times$ 4 per cent. $= .6+$ = lbs. fat in milk used.
23.3×40 per cent. $= 9.3+$ = lbs. fat in cream used.

$9.9+$

Or 9.9+ lbs. fat in 16.6 lbs. milk used and 23 3 lbs. cream used.

We find that forty pounds of 25 per cent. cream contains 10 lbs. of fat.

The above formula used in connection with the Babcock test to determine the per cent. of fat in milk and the per cent. of fat in cream, being estimated as has already been shown, enables the producer of cream to mix same so as to have a uniform quality all the time. The separator cannot be depended on to grade cream with any uniformity, as the cream thrown out varies both with the speed of the separator and the feed of same.

W. D. SAUNDERS.
Virginia Polytechnic Institute, Blacksburg, Va.

DIGESTIBILITY OF CORN FODDER.

When the ears are ground to corn and cob meal, corn fodder shows a higher percentage of digestibility than any other common coarse food stuff, the digestibility of the dry matter being 8 per cent. higher than timothy hay and 14 per cent. higher than clover hay (see Bulletin No. 43, page 205).

The total digestibility of corn fodder is increased 6 per cent. by grinding the ears to corn and cob meal previous to feeding; while the value of the ears alone is increased nearly 20 per cent. by grinding.

In both its composition and digestibility corn stover closely resembles timothy hay, and the edible portion of the stover has a nutritive value fully equal to that of timothy.

CYRIL GEORGE HOPKINS, M. S., Ph. D.,
Illinois Experiment Station. *Chemist.*

The Poultry Yard.

TIMELY TOPICS.

Editor Southern Planter:

Every breeder of poultry realizes the necessity that is upon him at this season of the year to provide adequate accommodations for his growing stock. One of the best ways we have found to do this is to look over the old stock and cull out those that have passed their days of usefulness and put them upon the market. At this season, fowls usually begin their moult, and three months is generally the length of its duration. When the first shedding of feathers is noticed, they are, as a rule, in marketable order, and they should be shipped before they become ragged. It is true the market is a little weak at this season, but any loss in price is more than offset by the feed-bill incurred during the three months of inactivity.

In advising the sale of old fowls we do not mean an indiscriminate sale of all the stock that have been used for breeders the past season. Very many advocate this, but we do not deem it wise to depend solely upon the pullet, however early hatched, for next season's breeders. Experience has taught us that the hen will give us eggs that test the largest per cent. of fertility and produce chicks of the greatest vigor and stamina. It is here, possibly, that much of cause of complaint made by purchasers of eggs finds its source.

In selling your old stock, therefore, sell only those that have proven themselves drones or such as you know are past their prime. By no means part with a good layer simply because she is growing old. The space you have gained by this culling over can be filled, after a thorough overhauling and cleansing, with young stock. In providing this space and housing the youngsters, do not do it indiscriminately. Keep all cockerels to themselves, for they will nag and annoy the pullets. Provide them plenty of water and shade, and as they develop cull them over frequently, putting the choicest specimens to themselves. If this method is pursued, there will be no time lost in selecting proper birds to fill orders. Decline to sell your culls to any one for breeding purposes. If you are not prepared to caponize them, simply fatten for your own table, or to be sold as dressed poultry in the early fall and winter.

Should the accommodations provided by this sale of old stock prove insufficient and unsatisfactory, and you are not yet ready to erect permanent buildings, an exceedingly good roosting coop can be made from a dry-goods box. Saw the sides of the box at a proper angle to give your roof sufficient slant to carry off the water, replace the top, and tack over it tarred paper, or batten the joints; remove the entire front, and fasten wire netting, one inch mesh, or wire screening over the front. A number of these inexpensive roosting coops scattered through the orchards and placed in shady nooks, will afford excellent shelter, and the growing birds can be left as near as possible on unlimited range.

In providing permanent quarters for your flock, no better season can be selected in which to build than this, for the hot, dry weather will drive out the "greenness," and fowls do best in quarters that are seasoned. Greenness produces dampness, dampness disease, and disease destroys the profits. For neatness and convenience we have found nothing better than the scratching shed-house. The proportions are easily changed, but for a pen of fifteen pullets and cockerel we deem the following dimensions ample: Let the shed be 7x16 feet, containing a roosting-room 7x6, and scratching-shed 7x10. The walls of the roosting room should be close, and built to avoid all draughts. One inch wire mesh should be stretched across the front of the scratching-shed, and muslin curtains kept in place to be lowered in extreme weather. For the most part these scratching sheds can, in our mild climate, be left with the curtain up, and in the heat of summer they afford most comfortable sleeping quarters. In these plans there is an absence of ostentatious display, but this is met by the study of the laws of proportion and adequate ventilation, with that great desideratum—abundant floor space.

Powhatan Co., Va. J. H. SLEDD.

CHICKEN KILLING.

The packing house of Swift & Co. in Chicago has a capacity for killing and dressing about 10,000 chickens, 6,000 ducks, or 5,000 turkeys a day, and they have it reduced to a science. To follow a bird from the time it arrives there as part of a carload lot until it is shipped to market would be an affair of days, but we will give a hasty glance at the way they are handled. As the car runs alongside the building, it stops opposite a chute, in which is an endless belt with small cleats on it. As fast as a man can catch chicken, duck or turkey, he puts it on this belt, which takes it to the second floor. There it is landed in a cage over large scales. As soon as this is full, they are weighed and distributed to feeding pens, where they are fed until thought fit for market.

We will leave our first bird here and follow another through the slaughter-room. A cage full is weighed and sent down to a small coop on the first floor. Here a man grasps it by the body, turns it on its back, and fastens both its feet in a small prong on another endless chain. As it goes on, another man kills the chicken by a stab in the throat, and at the same time places a weighted tin can on its bill. This holds the bird firmly in an upright position, head downward,

and the can catches all the blood, which afterward goes to the fertilizer department. Now it must run the gauntlet of about twenty men, white and colored, each one of whom takes a certain part of the feathers. Then it passes through a cage in which are eight men. Their duty is to pull the choicest feathers, which are left for them. They drop to the bottom of the cage, to be gathered up later on. There may be some feathers or pin feathers left, and the last man takes the chicken off the prong, and takes it to a hook, where he gets these off, and then passes it to the inspector. If he is satisfied with its appearance, it is sent to cold storage, and when thoroughly cold, it may be sent off at once, or it may remain for weeks, according to market demands.

They have about 20,000 in the feeding quarters at the present time, and usually kill chickens one day, ducks another, and turkeys another, partly for convenience in handling the feathers. About eighty men are kept employed, and the wages are from $1 50 to $2.50 for eight hours' work according to smartness and experience. Some are also scalded before picking, and the endless chain carries them through scalder and cooling bath before they reach the pickers.

This business was begun by them about five years ago, and has grown to its present proportions. They keep men all the time on the road buying this poultry, and it is said they also encourage and often assist the farmers to obtain thoroughbred birds to breed from or to grade up their flocks that they may have better poultry to sell They also have a large poultry y rd at St. Joseph, Mo. It is in this way that they and others are able to fill orders for carloads of poultry for England almost at a moment's or a day's notice, and to have such as will be sure to give satisfaction to the fastidious consumers of that country —*Exchange.*

FEEDING CHICKENS FOR GROWTH.

Coops vs. Yards.

This study was undertaken at the Maine Experiment Station to compare the rapidity of growth of chickens confined in small coops vs. chickens kept in sheds and small yards.

Ten coops, each with a floor space sixteen by twenty-three inches, were constructed of laths with close end partitions of boards. The floors were of laths placed three fourths of an inch apart and one inch from the walls, so that they might be kept clean by the moving about of the birds. The coops were made two together without cutting the laths. The laths ran lengthwise of the coops on bottom, top and back, but on the front they were placed upright, and two inches apart so that the chickens could feed through between them readily. V shaped troughs with three inch sides were placed in front of and about two inches above the level of the floors of the coops.

These coops are of about the same size and form as those used by the English and French chicken fatteners who make a specialty of the business, fattening many thousands each year. They were located in the light, airy, cemented basement of the barn where they were free from disturbance, and the variations of temperature were not great.

The chickens used in the test were raised under similar conditions and from the same batch. They were one hundred and thirty days old at the commencement of the test, and all were pure-blooded Barred Plymouth Rocks, White Wyandottes, or the Eaton strain of Light Weight Light Brahmas.

Four chickens were placed in each coop and fed on thick raw porridge, made by mixing meal with cold skimmed milk, making it thick enough so that it would drop and not run from the end of a wooden spoon.

The meal mixture employed was made up by mixing 100 lbs. corn meal, 80 lbs. wheat middlings, 50 lbs. of fine ground oats, and 40 lbs. of fine animal meal. They were fed all of the porridge they would eat, twice each day. The troughs were removed and cleaned in half an hour after the commencement of each meal. They were constantly supplied with water.

Feeding was commenced August 24th, and continued until September 28th—thirty five days. The birds were weighed at the end of each week at the same hour, so that they might be equally empty of food at each weighing.

They consumed 477 lbs. of meal and 84 gallons of skimmed milk. The forty chickens weighed at the commencement of the test 147.9 lbs., and at its close 237.1 lbs., and had gained 89.2 lbs.; an average of 2.23 lb. per chicken live weight. The quantity of dry meal required to produce a pound of gain was 5.94 pounds.

On the day that the feeding of the cooped birds was commenced, twenty of their mates were put in a house nine by eleven feet in size, with an attached yard twenty feet square. The yard was entirely bare of anything that would serve as green food.

They were fed during the thirty five days on the same grain mixture with milk as those confined in the small coops. The twenty birds weighed at the commencement of the test 66.6 lbs., and at the close 116.0 lbs., making a gain of 49.4 lbs.; an average of 2.47 lbs. to each. The quantity of the dry meal required to produce a pound of gain was 5 52 lbs. In these tests greater total and individual gains and cheaper flesh productions were secured from the birds with partial liberty than from those in close confinement. The labor was less in caring for the yarded birds. The cooped birds were very quiet and did not appear to suffer from confinement.

When dressed, all of the carcasses in both lots were even, well formed and handsome. The results indicate that there is no advantage in close confinement, but that rather greater gains and cheaper production result from partial liberty. That our success with the small coops was as good as that of the foreigners is shown by the reports of the English and Canadian fatteners. In another test made for the purpose of noting the effect of age on the development and fleshing of chickens, it was incidentally shown that there is no advantage in very close confinement.

FINANCIAL RESULTS.

Taking the sixty cooped and uncooped birds together and considering the gains in flesh, and the cost of the food used, enables us to form opinions as to the advisability of selling chickens from the range when in growing condition, or specially preparing them for higher priced markets.

If these birds had been dressed without fattening at the commencement of the feeding test, and had shrunk the same per cent. that they did when slaughtered, they would have yielded 165.5 lbs of dressed meat, worth, at 13 cents per lb., $21.51. At the close of the test they dressed 272.7 lbs., and were sold at 15 cents per lb. net., yielding $40.90. This shows that their value was increased by fattening $19.39. The increase was probably more than this amount as we found in other tests that the percentage of shrinkage in dressing lean chickens was greater than in fat ones. Thirteen cents was as much as the unfattened birds would have sold for—slowly; while the fattened one sold quickly in the same market at fifteen cents per pound. They were much improved in quality by fattening. The flesh was white and soft, and when roasted the thighs were soft, juicy and free from strings.

The amount of the dry food used was 750 lbs. and cost $7.91. The skimmed milk was 140 gallons, worth $2.80, making the total food used worth $10 71, which amount, taken from the increased value of the chickens, leaves a balance of $8.68 gain on the sixty birds; an average increase of a little more than 14 cents on each one above the cost of the food used.

A very large proportion of the chickens raised in this State are sent to market alive, without being fattened, usually bringing to the growers from twenty-five to thirty-five cents each. These tests indicate that they can be retained and fed a few weeks in inexpensive sheds or large coops with small runs and sent to the market as dressed meat and make good returns for the labor and care expended.

The quality of the well-covered, soft fleshed chickens, if they are not too fat, is so much superior to the same birds not specially prepared that they will be sought for at the higher price. The dairy farmer is especially well prepared to carry on this work, as he has the skimmed milk, which is of the greatest importance in securing yield and quality of flesh.

EFFECTS OF AGE.

In order to compare the gains made with chickens of different ages, twenty of the same hatch that were used in the previous tests were taken for the later feeding. When the former tests were started the birds were one hundred and thirty days old. This test was commenced when they were one hundred and seventy days old. During the time that their mates had been shut up for fattening, they had the liberty of a large yard with an abundance of green food. They had been fed mash in the morning and mixed grain and cracked corn at noon and night. They had been growing bone and muscle but were not meaty. Twenty of them were put in the small coops—four in each one—and fed from the same meal and milk mixture that was used in the previous tests. When the experiment began, October 11th, they weighed 100.2 lbs. They were fed twenty-one days and then weighed 117.5 lbs., having gained 17.5 lbs.; an average to each bird of .87 lbs. They consumed 144 lbs. of the dry meal and the same relative amount of milk as in the earlier test. 8.2 lbs. of the mixed meal was required to make a pound of live chicken. With the confined young birds in the previous test, but 5.94 lbs. of food were required to yield a similar amount. The gain per bird of .87 lbs. was markedly less than that of the younger birds of 1.48 lbs. during the first twenty-one days of their test.

When these chickens were put in the small coops twenty-five of their mates of the same hatch were put in a house nine by eleven feet with a yard twenty feet square, and fed twice a day on the same mixture of meal and milk. None of the birds received green food. During the twenty one days they gained 23.2 lbs., an average per bird of .92 lbs.; while in the previous test with the young yarded chickens, the average gain during the first twenty one days was 1 59 lbs

This decreased gain in the case of the older chickens corresponds with the recognized law in animal feeding, that the younger the creature is the less the quantity of food required to produce a pound of growth. For the moderate difference (6 weeks) in the ages of the two lots of chickens this variation in the amounts of food required to produce a pound of gain seems extravagant, but when it is considered how rapidly chickens mature, it is not unreasonable. The practice of successful poultrymen in selling the cockerels at the earliest marketable age is well founded, for the spring chicken sold at Thanksgiving time is an expensive product.

The average live weights of the two lots at slaughtering was very nearly alike, viz., 5 88 lbs. for the younger, and 5.83 lbs. for the older ones. The young ones were better in appearance, being thicker meated and softer, while the older ones showed a trifle more bone and a little harder flesh.

FINANCIAL RESULTS.

The forty five birds weighed 221.9 lbs. at the beginning of the test. If they had been dressed at that time and had shrunk at the same rate as they did when they were slaughtered, they would have yielded about 177 lbs. of dressed meat, worth, at thirteen cents a pound, $23.01. They ate 321 lbs. of mixed meal costing $3.40, and 60 gallons skimmed milk, worth $1.20, altogether $4.60, which taken from the increased value of the chickens leaves $3.71 as the net gain—not accounting for labor—or an average of 8 25 cents for each chicken.

Although the chickens employed in this test had been growing during the five weeks in which their mates in the first test had been undergoing fattening, they had not improved in condition sufficiently to sell at a better price per pound than at the commencement of the first test.

G. M. GOWELL.

Maine Experiment Station.

SELECTING A BREED.

To arrive at a correct estimate of the number of eggs a breed will lay in a year is not possible. A flock of Light Brahmas kept by one person may lay more eggs than a flock kept by another, and Leghorns managed by an experienced farmer may lay more eggs than Light Brahmas. The fact is that there is not ten eggs difference in a year between the best breed and the lowest that may be selected; if it should be claimed that the Leghorns are the best layers, those who keep other breeds will immediately assert that the claim is incorrect. Again, sometimes one hen may lay 150 eggs in a year, but it is a good flock that will lay 120 eggs a year on an average for each hen. About 100 eggs a year may be fixed upon as the average a hen for a large flock, and which breed will lay the most is unknown, as the difference, if any, is so close. One would hesitate to select the highest number even if compelled, as it cannot be done correctly.—*Poultry Keeper.*

The Horse.

FEEDING THOROUGHBRED YEARLINGS.

Editor Southern Planter:

I read your article on the sale of the Ellerslie yearlings, and note that the price average was not satisfactory. It was surely low. Every year I look at the sale report of Hancock's colts with interest, and frequently with feelings of disappointment, because a number of great horses have been bred at Ellerslie, sired by Eolus, and good ones, too, by Charaxus. Other breeders put up their youngsters for sale both before and after Mr. Hancock, and get very much better prices. There must be a cause or a reason why such well-bred ones go so low.

I have several times been told by Tennessee friends attending the sales, that the reason is the Ellerslies are small and not in fine condition. I have heard this said of them for several years past, and wonder that such should be so. All thoroughbreds are thoroughbreds, and while some families will bring ten or twenty times as much as some others, yet the public or horse buyers will not pay transcendently high prices for those of the most fashionable blood if they are undersized, lean and rough. I had a friend here who for years sent colts to sell in thin order, undersized, etc., saying that his methods were the right ones—to make hardy *race* horses. Well, he just got usually saddle horse prices, until he changed and fed and grew his colts up to good size, then his receipts were multiplied; but had he began earlier to have his colts fully grown and in blooming condition at sale time, a vast difference in his cash account would have been shown in a period of ten years.

Pea vine hay, oats and corn are abundant in Virginia. These, with some cut up corn stover moistened with hot water, bran and corn-chop or meal mixed in for night feed, will put colts in fine condition and *growth.*

This corn-stover, meal and bran feed was the one used by Mr. Aristides Welch at night. Every horse—Leamington, brood mares and weanlings—were fed it every night. Oats and timothy morning and noon.

I used to visit him and spend a week or a month, as I chose. He saved every cornstalk and had it cut up by a machine and put in his barn. With this there is no need for any one growing timothy in this region at least. Where pea hay can be had so easily, this is the hay for growth, for muscle, blood and sinew.

Several winters past I was at the Hon. Andrew Price's Clover Bottom Farm, where I saw a dozen or more of such large, fine looking, fine conditioned *trotting* weanlings—or yearlings then—as I had never before seen. They were a surprise to look at. They appeared in growth and condition fully up to the thoroughbreds of same ages at General Jackson's Belle Meade stables. An old race horse judge was along with me, and his surprise was great; he did not think any sort of colts except thoroughbreds ever had such size and condition at that age. Mr. Price's trainer also said he had never before seen such a lot of colts. They were in a lot with a very ample shed with wheat straw banked on each end and one side to exclude wind and air, except on the open south side.

The trainer explained to us that pea hay was the cause of this extraordinary fine condition and size of the colts. They were fed moderately with grain, and less grain than other colts had been fed in preceding years, but which had never attained the development of the lot then before us. The trainer and horse manager of that farm asserted that pea hay excelled all the feeds he had ever used to grow colts and put horses in plight.

I am sure if you could induce Captain Hancock to follow this practice, you would do him a great service and add to his stock's reputation. Let him take this season's colts and prepare them, so as that next year they will enter the sale ring finely grown and in fine flesh and muscle, too, which pea hay *ad libitum*, with other proper foods, will give them. Pea hay especially is good, and good to feed them *before they are born.*

I am sure Ellerslie yearlings ought to run to an average of $600 to $800; but to bring it they must look it.

Tenn. V.

NOTES.

From their inception horse shows have been well received by the public, and their popularity seems to be on the increase rather than otherwise. Not only do the big shows that are held annually in New York, Chicago and other large cities attract general attention, but those held in smaller places and numerous rural districts come in for their full share of patronage, which is generously accorded by the best classes of people. These horse shows have accomplished much good in stimulating the interest in high class horses of all breeds, and breeders and farmers in general all over the country have not been slow to recognize the changed condition of affairs. During former years the craze was for speed almost entirely, and breeders seemed to lose sight of other prime requisites, such as finish, size, style, and the all important considerations of soundness and temperament, which add so much to the value of horseflesh. For generations past the Valley of Virginia has been noted for its horses, and during recent years the interest in them has greatly increased, which has been due in a great measure to the efforts of the liberal minded and progressive citizens at the head of the Rockingham Horse and Colt Show Association, the annual exhibitions of

which are held at Harrisonburg, and have become exceedingly popular throughout that far-famed and beautiful section. Secretary Dr. John A. Meyers has issued the catalogue and prize list of the Association, to be held at Harrisonburg on August 22d and 23d, when liberal prizes will be offered for thoroughbreds, trotters, hackneys, high stepping harness horses, hunters, saddle, coach and draft horses. Dr. Meyers, the popular and efficient secretary, also holds the position of treasurer, while the other officers are President J. C. Steigle, Vice-Presidents Thomas G. Herring, Major George Chrisman, William H. Rickard, and G. R. Eastham. The board of directors is made up of J. C. Steigle, P. J. Lamb, Capt. A. H. Wilson, James Cox, George G Herring, Major George Chrisman, and Dr. E. D. Davis.

One of the most consistent performers out this season is the seven-year old chestnut stallion, Bird Eye, by Prince Delmont, out of Sue Burglar, by Burglar, 2:24¼, who has won several good races and finished inside of the money in others. Bird Eye was bred by J. H. Scales, Byrdville, Va., who owned the sire and dam, disposing of the colt as a yearling for the insignificant sum of $30 to D. W. Fuller, Smithfield, N. C. After passing through different hands, Bird Eye was purchased by R. L. Smith, of Greenville. N. C., for whom he trotted to a four-year old record of 2:18¼, reducing it to 2:14¼ in a winning race at Oil City, Pa., on July 19th, driven by Mr. Smith. When in shape, and on a good mile track, this chestnut son of Prince Belmont can trot close to 2:10, while he is level-headed and reliable and rarely makes a mistake.

In the bay gelding Rustler, six years old, by Hustler Russell, dam Lady Pilot, by Pilot Mambrino, E. D. Christian, Jr., of this city, has the winner of six races and a good prospect for a 2:10 trotter. Commencing the season a perfectly green horse, Rustler has started nine times, winning six races, one second and two fourth moneys, trotting to a record of 2:15¼, and finishing in a jog. Like the chestnut stallion, Bird Eye, 2:14¼, Rustler was sold for a trifling sum, about $35, as a yearling, but, like many another well-bred colt, began to show speed with handling, and with age and development his true calibre asserted itself. Fast as a yearling, and even more promising during the early part of his two-year old form, Rustler trained off during the latter part of that season, and at three was used for driving, but at four passed to James W. Hart, and from him to Mr. Christian at five, in whose hands the bay gelding began to improve rapidly, and early last spring he trotted a trial in 2:22, and it was decided to take him to the races, where, in the hands of the veteran trainer and driver, C. A. Pusee, the career of the tall son of Hustler Russell has been little less than remarkable.

Mr. R. M. Lawson, Burke's Garden, Va., has purchased of Preston Stock Farm, Preston, Minn., the finely formed and handsome bay colt Dixon McGregor, two years old, by Bay McGregor, dam by Madison Smith, 2:19½, the son of Herod, 2:24½. The youngster will be placed in the stud by Mr. Lawson, who owns an elegant estate of several hundred acres, and has been interested in the breeding problem for a number of years. As his property, the fast mare Anpie Lawson, 2:20, trotted to her record, while he owned several full sisters to that roan daughter of Prince Orloff, the son of Messenger Duroc. Mr. Lawson formerly owned the bay stallion Planeteer, son of Electioneer and Planetia, thoroughbred daughter of Planet, and kept him in the stud for several seasons. With his breeding and individuality, Dixon McGregor should make a successful sire, especially when crossed upon the highly-bred mares in the section to which he has been taken.

The Central Carolina Fair Association, recently organized at Greensboro, N. C., starts out with a bright prospect. October 9th to 12th, inclusive, are the dates selected for the first annual fair and race meeting. The grounds and fine half-mile track of the Association, are but a short distance out from the corporate limits of Greensboro, and easy of access. Capt. James H. Walsh, formerly with the Southern Railway, is the secretary of the Association, while the other officers are: J. Van Lindley, president; W. H. Osborne, first vice-president; Cæsar Cone, second vice-president; General J. S. Carr, of Durham, third vice-president; Fred. Taylor, assistant secretary, and Neil Ellington, treasurer.

Mr. A. B Gwathmey, who is a Virginian by birth, and deeply attached to his native State, but for years past identified with the New York Cotton Exchange, and one of the most active members, is also a fancier of trotting horses and one of the ablest amateur reinsman in the metropolis. Mr. Gwathmey's private stable shelters a grand trio in Lorna McGregor, by Elyria, dam by Robert McGregor; that great mare Louise Mac, 2:09¾, by Little Corporal, and the bay gelding Belton Jr. by Belton, 2:17¼, the son of Belmont. The latter was purchased in 1899 from John Spratley, Dendron, Va., and in looks, conformation and manners, is a model, while either in single harness or to pole he has few equals. Earlier in the season Belton Jr. and Louise Mac were driven to pole and made one of the fastest teams to be seen on the Harlem River Speedway, New York's famous driveway. Louise Mac is now in Trainer Charles A. Thompson's hands at Empire City track, and is showing two-minute speed in her work; but in Belton Jr. and Lorna McGregor hooked double, Mr. Gwathmey will still be able to hold a strong hand on the Harlem River drive, where many of the great trotting horses of the world are to be seen daily.

Jas. C. Smith, the veteran breeder, owner and road driver, who is now city sergeant of Richmond, has sold to Jas. W. Carpenter, Leadville, Mass., the fast bay gelding Roster, 2:16¼, by Almomedo, dam by Red Wilkes. Carpenter campaigned and drove Roster to his record in 1899, and in his hands the bay gelding was only beaten a head in 2:12½ very recently. Mr. Smith still owns some good ones, among them being the giant gelding Mosul, who trotted to his record of 2:09¼ when five years old.

Charles Atkinson, who formerly trained and drove for John Mariner, Norfolk, Va., has been engaged by Capt. John L. Roper, same city, to the well-bred colts and fillies at Foxhall Farm, the get of Great Stakes and other well-bred sires. BROAD ROCK.

Miscellaneous.

VIRGINIA STATE BOARD OF AGRICULTURE.

This Board met at Old Point on the 17th July, President Ruffin in the chair. At the morning session Dr. Magruder, the Chemist to the Board, gave an interesting address on Soil Analysis. Commissioner Koiner made a report on the work done by the Fertilizer Inspectors. At the afternoon session it was decided, after a discussion upon the subject, to appropriate $3,000 for the holding of Farmers' Institutes in every district in the State. At the session on the 18th inst., the question of establishing a Tobacco Experiment Farm in Southside Virginia was brought before the Board by Major R. V. Gaines and Dr. Priddy, of Charlotte county, who asked that a farm be established in that county, as the soil there was of such character that experiments could be made with both dark and bright types of tobacco. Mr. Barker, one of the members of the Board, thought that something ought to be done to promote the tobacco growing industry, and suggested Pittsylvania as the location for the farm. It was decided to appoint a committee to look into the matter and report at the next meeting, and Messrs. J. H. C. Beverley, J. T. Goode, and J. M. Barker, were appointed the members of this committee. Major J. T. Cowan, Mr. C. W. Heater, and Mr. Jno. A. Stuart, were appointed members of a committee to enquire into and report upon the needs of the other agricultural interests and sections of the State in the way of experimental work. Mr. Commissioner Koiner brought before the Board a complaint of shippers of fruit and berries as to the careless manner in which their products were handled and the delay in delivery. The President was directed to appoint a committee to enquire into the best remedy to be applied and to ask the assistance of the Legislature if necessary. The Board adjourned to meet at Roanoke in October.

FERÆ NATURÆ.

Editor Southern Planter:

The question of the preservation of fur, fin, and feather, is one that presents itself as civilized population thickens. The ground game laws in England were enacted as a counteraction to preservation which had become adverse to food supply. Before holding to the belief of the many, it were well to listen to the knowledge of the few, who have studied the matter, not from a fadist's, but scientist's point of view, so that preservation may be well endowed with discrimination.

A leading ornithologist and naturalist recently wrote: "The theory that is held by so many persons that all birds are especially beneficial to man, and all insects are injurious, and that the birds have been specially created to destroy them, is one which, it is needless to say, will not bear the slightest intelligent examination."

Great destruction is wrought by the crow, without any appreciable counterbalance, both to corn and the eggs and young of other birds, so that the slaughter of the "innocent" might be more fairly laid to its beak than woman's bonnet.

It does not follow that birds should be ruthlessly destroyed, or that a minimum of harm should not be considered to be counterbalanced by a maximum of good, or that a good song should not be entitled to a good supper from field or garden, but man feels himself entitled to the lion's share of nature's providing, and is testy as to sharing the work of his own hands.

The agriculturist might "sit up in church" with more complacency did he not know the birds were taking full advantage of his absence. If (and it is a very big if, for the vagaries of climate and other causes are much more likely to be the main factors) woman's vanity is chargeable with alliance with insect enemies of man, to the hindrance of his prosperity, and she is already credited with being his downfall, "God's last best gift to man" sounds rather hyperbolical, or, as the fair gift might herself express it, "just like a man." W. M.

A WARNING.

Angora Goats and Belgian Hares.

Editor Southern Planter:

The farmers of Virginia had best be careful in their acceptance of the truth of all the literature now circulated concerning the Angora goat and the Belgian hare. Aside from the undesirability of adding another branch to their already sufficiently diversified occupation, wherein even under present conditions a man of average ability can hardly expect to become expert in the management of all his affairs, there is always danger in the introduction of a new species into the animal life of a country. If the climate proves salubrious and conditions favorable to the life habits of the new species, and it gets to running wild, it may produce trouble beyond what any man can foresee. Witness the introduction of the mongoose into Jamaica, whence it was imported from India for the purpose of exterminating the rats, which destroyed the sugar cane. Instead of confining its effort to the extermination of the rodents, the mongoose preyed upon nearly every bird and animal upon the island, and

finally reduced the insectivorous birds to such an extent that the insects, particularly the ticks, have become a pest. The baleful effects of the introduction of the European rabbit into Australia afford another instance of the care which should be taken in making new introductions. First taken to that country in 1864, they increased to such an extent that the destruction of 200,000,000 in 1873 did not perceptibly decrease their numbers, and they have destroyed millions of acres of pasturage. This should be a warning to Americans not to allow an allied species to have the chance to run at large in this country. It will also be advisable for those who propose to keep Angora goats anywhere east of the Mississippi river, to be careful not to allow any to become wild, for they are very destructive to a forest country, as they prefer the leaves of deciduous trees to grass, and readily grazing five feet from the ground, they might become a serious menace to the wood lands of our Appalachian mountains as far north as they can make a living during winter months. The owners of forest lands may laugh at this; but let them consider the destruction of the forests on the Island of St. Helena, and they will see the philosophy of protecting their own. Goats were introduced into St. Helena in 1513, and it was then described as "covered by a dense forest." Three hundred years later the people were importing fire wood, and the island is described to day as a "comparatively barren, rocky desert." The goats of St. Helena were not Angoras, but the common Portuguese goat. Still, the difference is one of type only, as both belong to the same species, and the fondness of the Angora for the leaves of shrubs is so well recognized as to make it an inducement to keep them upon the ranches in Texas, wherever there is much brush. It is claimed that they do not consume the grass, and thus lessen the ability of the range to pasture sheep, but rather add to its productiveness by destroying the bushes. It is said they will stand upon their hind feet and reach a leaf six feet from the ground. There may be locations in Virginia where the Angoras will prove to be a profitable investment, but they can hardly be expected to produce as much revenue as sheep in any location where the latter can be successfully handled.

As to the raising of Belgian hares for profit, the whole thing is visionary. There will be more profit in poultry than in raising hares—or rabbits of any kind, for that matter—until our people prefer to have meat to poultry, and are willing to pay more for it. The Anglo-Saxon in England, and particularly his descendants in this country, are prone to be affected with mania at stated intervals. The silk worm craze, the Merino sheep speculation, the hen fever, the boom in Shorthorn and Jersey cattle, the advance in the price of standard-bred horses, that followed the establishment of the trotting register, the one-time inflated price of Hackneys, are examples of these attacks of mania, and reflect on the sanity of our countrymen. Present indications point to a boom in Angora goats and Belgian hares. "The public pulse is already beginning to throb" and the symptoms are ominous, and nothing but an unusually large dose of common sense will avert a catastrophe. These epidemics (for there has, as yet, been coined no word which better describes them), are expensive things to the country at large, and the Department of Agriculture should follow the example set by some of the State Boards in thoroughly disseminating all available knowledge concerning these animals, so as to counteract to some extent the influence of the literature put in circulation by those whose only object is to sell their stock.

Matthews Co., Va. PERCIVAL HICKS.

[We regard both Angora goats and Belgian hares as desirable acquisitions when kept in their places, but there is no doubt force in what our correspondent says as to the necessity for care in preventing them becoming wild animals. They might easily become costly pests in some sections.—ED.]

THE TRUSTS AND THE PEOPLE.

BY REV. SAM. P. JONES.

[From the Manufacturers' Record, Baltimore.]

The large trusts and combinations already formed and being formed by aggregations of capital are considered hurtful to the masses and the common people. This is a theory. Theoretically, a thing may be so, and practically it may be very untrue. When we speak of trusts and combines we think of the Standard Oil Trust, the Sugar Trust, the Tobacco Trust, etc. When the Standard Oil Trust was formed I was paying forty cents a gallon for kerosene oil; I am getting it now for ten cents a gallon. I was paying twelve and one-half cents for sugar several years ago, but when the combines set in we got it at five and one-quarter. When the Whiskey Trust was organized I was in hopes it would put up whiskey where the poor devils couldn't get it, but they have seemed to cheapen that down to where they can pay the government $1 15 a gallon revenue and yet sell it for $1.27½, which demonstrates that they are making it and letting the public have it at about twelve and one half cents a gallon.

There is no doubt but that an aggregation of wealth, with brains controlling it, can manufacture any article cheaper than it is or has been manufactured on a small scale. The great railroad combinations, many think, will eat us up blood rare. Occasionally I get on a little jerk water road that is not in the combination, and I want to double my accident policies and be satisfied with a 15-mile-an hour gait and console myself with the idea that I can ride all day for a dollar, but when I get on the Pennsylvania or Vanderbilt system of roads, with their schedules forty miles an hour, vestibule trains, with parlor cars,

sleeping cars, dining cars, I have a hotel on wheels carrying me towards my destination, and all this for about two cents a mile. Give me the road that is in the combine to carry me where I am going.

Public sentiment is the safeguard which is thrown around all aggregations of wealth and all combinations of interest. The Standard Oil, the railroad combinations, the Sugar Trust are as sensitive to public sentiment as the snow-bank to the rays of the sun. Trusts and combines will not hurt the public, but stockholders and bondholders may suffer later on, when these great bulky institutions become unwieldly and fall with their own weight. Fifty thousand men in the United States, perhaps not more, are interested in the great trusts of the country. Those 50,000 men know that there are 70,000,000 of other people in America, and their wisdom teaches them where boundary lines are, over which they cannot go without peril to themselves and disaster to their business. No combination now says "damn the public," but they have their weathercocks out on every prominent cupola watching how the wind blows.

Of course, political capital can be made out of such formations of wealth, and social orders may raise the black flag to fight them; but I am a thousand times more afraid of demagogues and politicians than I am afraid of trusts and combines. Good government—which means not only the well-being of the citizen, but the overthrow of all that will hurt the citizen—depends upon good men in office, and we had better pay less attention to what we call trusts and combinations and more attention to those whom we elect to office in the municipal, State and national governments.

[There is very much truth and sense in what the Rev. Sam. Jones says. We have much greater dread of the demagogue who goes about denouncing capitalists and capital than we have of the so-called "trusts." Capital is always a shy thing, and yet without it the wheels of progress cannot move round. Once start a scare and it will take wings and fly away to where it finds greater quietude and more appreciation, and we shall be left stranded. The demagogue who is always pandering to the passions and feelings of the least instructed part of society is a thousand times more dangerous to the well-being of the people than all the trusts and combines in existence. Time and hard times will soon bring them to their level, but these only aggravate the danger of the demagogue.—ED.]

TOBACCO LAND.

I have a small plot of land that will not grow tobacco, but will grow *rank* wheat and clover. The land is around where an old cabin stood. Please state what it needs.

Amherst Co., Va. C. T. WATTS.

Whilst you do not say in what respect the tobacco raised on the lands is deficient, yet we should assume from what you say as to the *rank* wheat and clover, that the land lacks the mineral fertilizers, and especially potash. We would advise an application of acid phosphate and sulphate of potash.—ED.

FARMERS' INSTITUTES.

A series of Farmers' Institutes will be held in Southside Virginia, commencing Friday, August 7th. These Institutes are held under the supervision of the Department of Agriculture, and the expenses incident to them are paid out of the funds of that Department. The State Board, at its last meeting, made an appropriation for this purpose. The Institutes will be held as follows:

Chatham, Tuesday, August 7; South Boston, Wednesday, the 8th; Keysville, Thursday, the 9th, and Farmville, Friday and Saturday, August 10th and 11th.

Hon. G. W. Koiner, Commissioner of Agriculture, will deliver an address upon commercial fertilizers.

Prof. S. B. Heiges. of York, Pa., will speak upon the following subjects: "Fruits;" "How to Manage Commercial Orchards;" "Restoration of Worn Out Soil;" "Profitable Farm Crops;" "Diversified Farming;" "Poultry for Profit."

Prof. S. J. Barber, of Harrisburg, Pa., will discuss the following subjects: "Modern Dairying;" "The Little Things that are Necessary to Know in Making Modern Butter and Cream;" "Successful Hay Raising;" "Soil System;" "Feeding Dairy Cattle;" and "How to Balance the Rations."

Hon. J. M. Barker, member of the Board of Agriculture from the Fifth District, who is the largest tobacco grower in the State, will deliver an address upon raising the crop.

POSTAL SAVINGS BANKS.

What a system of postal savings banks might do for the American people is suggested by the statistics of the French national savings banks for 1898, which have just been made public by the government. On January 1, 1899, there were 9,964,678 depositors, which is a proportion of 251 depositors to each 1,000 of population, or one French person in four, man, woman or baby, has an account with the government. These deposits aggregate 4,275,261,452 francs, an average of 429 francs per account. Of these, 3,234,908, or 32½ per cent., are of twenty francs ($4) or less, and 1,740,245, or 17½ per cent, are of between 21 and 100 francs, which means that half of the accounts represent savings of less than $20, which is the best possible testimonial to the value of the system for the encouragement of small savings. The depositors come chiefly from the working classes. Among the men, for instance, day laborers are 6.58 per cent.; artizans, 6.71 per cent.; domestics, 3.54; clerks, 4.46; chiefs of establishments, 5.28; liberal professions, 1.12; without occupation, 3.49; soldiers and sailors, 1.76, and nomads, .07. Of the females, domestic servants form 9.81 per cent.

The well-known trainer and driver, William Bass, of the Acca Farm, near this city, has close to twenty head of trotters and pacers in the training stable there, some of which are being worked for speed over the half mile track at the farm, while others are jogged daily over the fine roads in the vicinity. Bass gave Miss Nelson, 2:11¼, her first lessons in harness, while other fast ones have been developed and driven to their records by him; but among those now in his charge are several that he considers the very high class.

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We invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles. Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,
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To Our Readers.

Whilst taking a rest during this month and visiting your friends, we would ask that you do us the kindness to bring the *Planter* to the notice of those who are not already readers of it. We shall be glad to send sample copies to any names and addresses sent us, or to send a number of copies to any of our subscribers who will take the trouble to hand them to such of their neighbors and friends as they may think likely to become subscribers. If each of our subscribers would only bear us in mind and help us in the way suggested, it would not only be a kindness done to us but would also be a benefit done to himself and his neighbor. The more readers we have the wider the area from which we obtain information and experience, and the more interesting and useful the *Planter* becomes to every reader. Remember, the price is now only *50 cents* per year. Every farmer can afford this sum.

AMERICAN ENTERPRISE AT PARIS.

Among the striking and original exhibits at the Paris Exposition of 1900 few have occasioned more favorable comment than the great map of the United States, 18x15 feet, exhibited by the well known advertising agency of Lord & Thomas, of Chicago and New York. This map is constructed to show at a glance the various details concerning State areas and population, number of publications in each, circulation per issue, percentage of circulation to population, value of publishing plants, number of employees, average hours of labor, average wages paid, and average cost per inch for yearly advertising. Information of this nature is of especial value to advertisers, showing, as it does, the best locations in which to place advertising, to reach the greatest number of people and secure the best results.

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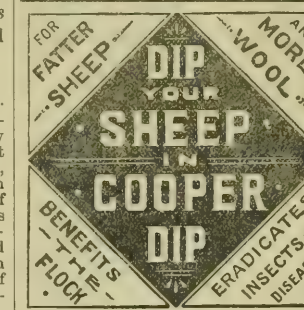
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Hall's Family Pills are the best.

MAGAZINES.

The Midsummer Holiday *Century* is chiefly notable, perhaps, as introducing a writer hitherto unknown, of whose power to interest those who "never read serial stories," the editors feel confident. The new-comer, Miss Bertha Runkle, is a young lady still in her early twenties; and the scene she has chosen for her first effort in fiction is in Paris at the time of the accession of Henry IV. The story, which will run for several months, is called "The Helmet of Navarre." It is announced as a dramatic romance of love and adventure, characterized by great inventiveness and by rapid and absorbing action. Among the characters are the King and his opponent, the Duke of Mayenne. In the department of fiction, the August *Century* contains also a humorous monologue, "The Author's Reading in Simpkinsville," by Ruth McEnery Stuart, and three other short stories—by Laura E. Richards, Lillie Hamilton French, and Mary Knowles Bartlett—besides an interesting instalment of Dr. Weir Mitchell's "Dr. North and His Friends." An article that takes the reader far afloat is John Burrough's first paper on the Harriman expedition to Alaska and Behring Sea. Of the adventurous party were John Muir, of glacier fame, and R. Swain Gifford, the painter, who is one of the illustrators. Another out-door paper is Maurice Thompson's "In the Woods with the Bow"—a breezy account of hits and misses in shooting at game birds, with humorous pictorial comment by Miss Cory.

The Century presents in this number another of its experiments in color printing in drawings by James C. Beard and Potthast accompanying an article on "The Treasures of the New York Aquarium," by Prof. Charles L. Bristol. The experiment is in the direction of delicacy rather than of brilliancy. A similar picture appears on the cover. Mr. Castaigne, who last month presented exterior scenes of the Paris Exposition, now sets forth a series of spirited figures from the "Palace of the Dance," for the first of two papers on "The Amusements of the Exposition," by Jean Schopfer. Intimate acquaintance with his subject and constant practice of the art of fiction writing conspire to make picturesque Sir Walter Besant's bird's-eye view of "The Riverside of East London," with its teeming life and centuried traditions.

There are some remarkable articles in *The Forum* for August, *primus inter pares* being "The Present Status of Afghanistan," by no less a dignitary than Sultan Mohammad Khan, Chief Secretary of that "buffer country" between Russia and England. The Hon. Charles Denby, late Minister to China, relates "How Peace Was Made Between China and Japan," and F. F. Hilder writes of "The Present and Future of the Philippines." The well-known English labor leader, James Keir Hardie, who has done as much as any one living to advance the interests of organized labor, analyzes the present status of "Labor and Politics in Great Britain." An article of great interest to educators is "Child-Study and its Relation to Education," by Prof. G. Stanley Hall, whose essay on "College Philosophy" attracted so much attention some months ago. The late Secretary of Legation at Rome, Mr. Remsen Whitehouse, writes instructively of "Some Italian Problems," and "Tolstoi's Russia," "Canada and Imperialism," "Texas—Past and Present," "The Negro Problem in the South," are titles which will attract by the timeliness and interest of the subjects they represent.

The "*New Lippincott*" for August brings out William Le Queux's latest novel, complete in this number. "The Sign of the Seven Sins" is a story of love and mystery in high life on the French Riviera. The "Palace of Delight" at Monte Carlo, that spot of irresistible fascination, is conspicuous in the earlier pages. The strong plot compels intense interest until the clearing up of mysteries at Paris. Altogether, the tale is so exhilarating that it is sure to find favor with summer readers everywhere

Among the remarkably good short stories of the month, of which there are four, Seumas MacManus has contributed a jolly Irish sketch which is a guranteed cure for the "blues." It is called "Two Cockneys and a Conspirator."

One is reminded of Marryat's romances in reading in the August *St. Nicholas* Reginald Gourlay's story of "The Lucky Lieutenant." The difference between Midshipman Easy, or one of his fellows, and the Hon. John O'Brien, is that the former was fictitious and the latter real. The young Irish officer lived through a series of hairbreadth escapes by sea and land, and eloped at last with his old love, who brought him half a million sterling, the marriage occurring, of course, at Gretna Green. The explosion of the Lieutenant's ship prepares the reader for an account of "The Greatest Explosion of Historic Times," that of the volcano of Krakatua, in 1883, the noise of which was heard three thousand miles away. Less shocking in its results was the overturning by strikers of a railway car in which the Rev. Chas. M. Sheldon, author of "In His Steps," was making "A Trip with a Professional Rain-maker"—a story

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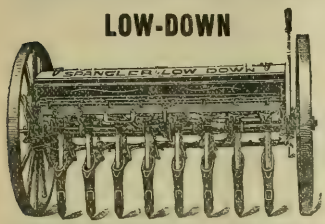
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"founded on fact," which he tells in this number of *St. Nicholas*.

Four short stories, the beginning of one serial, and the concluding chapters of another, give the August *Ladies' Home Journal* claim to the title of Midsummer Story Number. There are besides upwards of thirty other features: "College Girls' Larks and Pranks," "The Haunted Houses of New England," "My Summer with Some Chipmunks," "A Missionary in the Great West," by Rev. Cyrus Townsend Brady, "How a Girl Can Work Her Way Through College," "Conversation and Good Form in Public Places," etc. Pictorially, the August Journal is made unusually sumptuous by the work of nine illustrators and by innumerable photographs. "Through Picturesque America" will command particular attention, and Howard Chandler Christy's "American Girl in Society" is another notable artistic feature. A waltz, "Golden Poppies," is attuned to the slumberous summer days, and is exceedingly pretty. From cover to cover, the August Journal is entertaining and attractive. By the Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Office of Road Inquiries. Circular 35. Road Improvement in New York.

The Crop Reporter, July, 1900.

Alabama Experiment Station, Auburn, Ala. Bulletin 108. Tomatoes.

Arkansas Experiment Station, Fayetteville, Ark. Bulletin 61. Annual plants for summer hay and pasture, winter hay and pasture, and for forage or coarse fodder. Permanent plants for meadow and pasture.

Special crops for pig grazing.

California Experiment Station, Berkley, Cal. Bulletin 129. Report on the Condition of Olive Culture in California.

Colorado Experiment Station, Fort Collins, Col. Bulletin 54. Apiary Experiments.

Kentucky Experiment Station, Lexington, Ky. Bulletin 86. Inspection and Analyses of Foods.

Bulletin 87. Kentucky forage plants. The Grasses. Analyses of some Kentucky Grasses.

Louisiana Experiment Station, Baton Rouge, La. Bulletin 59. Sugar Cane.

Bulletin 60. Charbon (Anthrax).

Maine Experiment Station, Orono, Me. How to Fight Cucumber Enemies.

Maryland Experiment Station, College Park, Md. Bulletin 66. Lime Sources and Relation to Agriculture.

The Maryland Agricultural Quarterly, College Park, Md. Analyses of Feed Stuffs sold in Maryland.

Michigan Experiment Station, Agricultural College, Mich. Bulletin 179. Sugar Beet Investigations.

Bulletin 180. Some Insects of the year 1899.

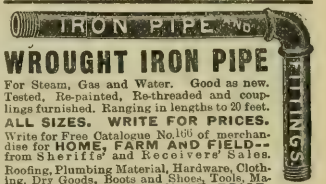


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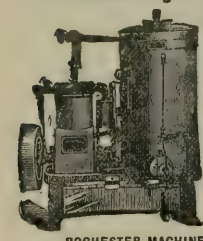
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Missouri Experiment Station, Columbia, Mo. Bulletin 49. The Apple Orchard.

Bulletin 50. A Test of Spray Nozzles.

New Mexico Experiment Station, Mesilla Park, N. M. Bulletin 32. Grasses and Forage Crops.

Bulletin 33. Notes from the San Juan Sub-station.

North Carolina Experiment Station, Raleigh, N. C. Bulletin 170. Corn Culture in North Carolina.

Rhode Island Experiment Station, Kingston, R. I. Bulletin 66. Effects of Lime upon Grasses and Weeds.

Bulletin 67. Commercial Fertilizers.

Bulletin 68. Treatment of Sandy Soils of Rhode Island.

South Dakota Experiment Station, Brooking, South Dak. Bulletin 66. Drought-Resisting Forage Plants at Highmore, S. D.

Bulletin 67. Watermelons and Muskmelons in South Dakota .

Virginia Weather Bureau, Richmond, Va. Report for June, 1900.

Imperial Department of Agriculture for the West Indies. Planting in Tobago.

PAMPHLET.

Orchard Technique. By W. B. Alwood, Experiment Station, Blacksburg, Va.

CATALOGUES.

Virginia Polytechnic Institute (State Agricultural and Mechanical College). Catalogue for 1899–1900.

Ellwanger & Barry, Rochester, N. Y. Catalogue of Pot-grown Strawberries for Summer Planting.

Alexander Seed Company, Augusta, Ga. Summer and Fall Catalogue.

PREMIUM LISTS.

State Agricultural and Mechanical Society, South Carolina. Thirty-second Annual Fair at Columbia, S. C., October 29th to November 2d, 1900.

Rockingham (Va.) Horse and Colt Show, Harrisonburg, Va., August 22d and 23d, 1900.

Condensed Report of the Annual Meeting of the Holstein-Friesian Association of America, Buffalo, N. Y., June, 1900.

SALES FROM BACON HALL FARM, MD.

Mr. Gillet reports the following recent sales, with the remark that enquiries are constant and demand good.

Herefords.—T. J. Myers, of Maryland, buys "Emperor Barker" and "Mabel," a splendid pair to start a herd.

Dorsets.—T. J. Myers, of Maryland, buys 4 head; R. N. Pollard (second order), 1 Dorset; Ed. C. Lasater, of Texas, 13 rams; Fletcher & Wilson, of Virginia, 2 rams; Fred. J. Shute, of Texas (third order this year), 2 Dorset ewes.

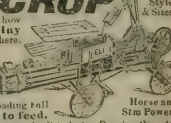
Berkshires.—T. J. Myers, of Maryland, 1 sow, "Duchess;" W. S. Cummings, of North Carolina, pair Berkshires; Louis de La Croix, of North Carolina, 1 boar.

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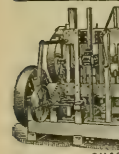


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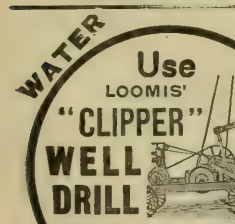


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Mention *Southern Planter* when you write.

PAINT TALKS—XXX.

Progress in Painting.

It is too often assumed by paint consumers and paint manufacturers that though everything else used by civilized man has been subject to improvement, the last possible advance in paint manufacture was made about two hundred years ago. Think of it! While the pulverized spiders, crushed lizards, and brayed earthworms of the Eighteenth Century Pharmacopœia have given place to the quinine, cocaine, and phenacetine, of modern medicine; while the sedan chair and the post chaise of "German George" have been superseded by the trolley car and the automobile; while the tallow dip of the Hanoverian period has been thrown into the shade by the electric light; and while the old post rider has been run to earth by the telegraph and the telephone, paint is to remain unimproved. In other words, those good old bunglers of the days "when George the First was king" in some way managed to discover the secret of making perfect paint.

Of course it is not true, and when the assertion is made it is only for effect. The only foundation for it is the fact that the essentials of the generally used process for making white lead were known several hundred years ago. But the white lead made by the same process today is better paint than any white lead known to our ancestors, and new processes for turning metallic lead into hydroxy-carbonate, oxide, and sulphide of lead, have been invented, and are producing white pigments, that are in some respects superior.

But the one discovery that revolutionized painting (for to it was due the production of house paints, properly so called), was zinc white It was introduced about fifty years ago, and naturally, like all new discoveries, was run "into the ground" by the enthusiasts. It was used for every purpose, proper and improper, until the painters of that day at last went to the other extreme.

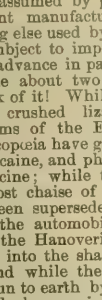
Since then it has gradually found its place, which is, for interior use, where it should be used straight, and for exterior use as a fortifier and preserver of white lead, or as the white base of combination paints not containing lead.

There are certain practical objections to the use of unmixed zinc on exteriors, These difficulties can be overcome, and, when overcome, no better white paint than pure zinc has yet been discovered. But the care necessary to overcome them is not worth the while, when nearly its full value can be gained by using it in combination with other pigments. In combination with white lead, it prevents chalking and discoloring. while in combination with the "inert" pigments, it permits us to take advantage of the enduring qualities of those pigments without sacrificing opacity or color.

Stanton Dudley.

The automobile will not balk,
As does the equine brute,
Nor run away, nor yearn for hay,
Nor get the "epizoot."
—*Elliott's Magazine.*

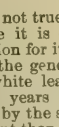
"ALPHA-DE LAVAL"
CREAM SEPARATORS.



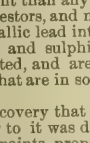
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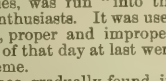


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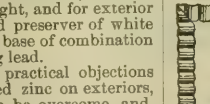
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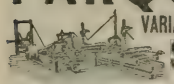
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This disease, although most troublesome in the spring and fall, is also liable to break out during the summer. However, calves can be protected against black leg with Black Leg Vaccine in the same way that human beings are protected against smallpox with smallpox vaccine. Following Pasteur's discovery of anthrax vaccine, the Black Leg (symptomatic anthrax) Vaccine was developed by Arloing, Cornevin and Thomas. For some years these celebrated scientists have been associated with the Pasteur Vaccine Co., of Paris, France, and Chicago, Ill., who introduced the vaccine into North America in 1895. Their success in the United States is phenomenal, nearly two million calves in the United States and Canada having been duly protected against blackleg with the Pasteur Company's vaccine during the last five years. The reputation of "Pasteur Vaccine" is, therefore, well established, and there is nothing experimental about it. It can always be relied upon, as it is manufactured by the discoverers themselves, and is, therefore, the original and genuine article. An interesting volume containing full particulars regarding black leg and its preventive treatment with "Pasteur Vaccine," as well as official endorsements and a large number of testimonials from prominent American stock-raisers will be mailed free upon application to Pasteur Vaccine Co., Chicago, or to its Branch Offices at St. Paul, Omaha, Kansas City, Fort Worth and San Francisco.

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Farm in Halifax Co., Va.

1½ miles from main line Southern Ry. 500 acres; 425 clear, 75 timber. Main dwelling, 7 rooms, frome, kitchen and out-houses, situated in grove. Mile from Scottsburg, 8 miles from So. Boston. Three schools in neighborhood; four churches. Land adapted principally to wheat, corn and tobacco. Good water. Price, $4,250. Apply to

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For Sale A RAPPAHANNOCK FARM

18 miles below Fredericksburg, containing 750 acres, 600 under cultivation or in grass, 400 fit to, well watered and in good condition. Dwelling with 11 rooms; best water in yard; grounds and view very fine. Healthy. 8 acres in fruit. In a mile of two wharves, and in four hours run of Washington. Terms liberal.

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NO PREPARATION of land is necessary in wheat fields in order to work this drill. Farmers can go into their wheat **stubble fields right after harvest and sow Cow-Peas** to perfection. It also sows all other grains in the best manner possible.

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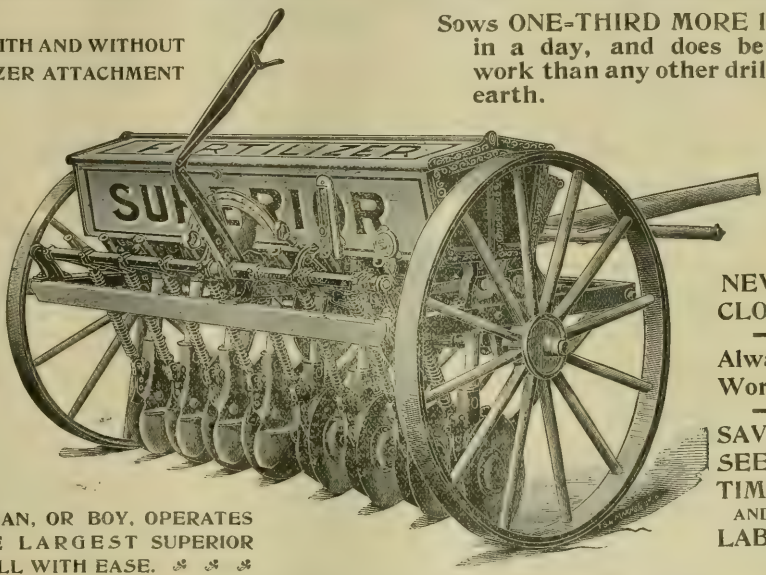
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Sows ONE-THIRD MORE land in a day, and does better work than any other drill on earth.

SOWS COW PEAS.

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Always Works.

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SUPERIOR DISC DRILLS represent the best value for the money invested. They have the most perfect grain and fertilizer feeds—positive and sure in action, and never fail to sow the required amount of both grain and fertilizer. You are sure of even distribution of seed sown at a regular uniform depth. It surpasses the Hoe Drill because it will not choke in trash, and never bunches or breaks. Superior Disc Drills will **seed one-third more land** per day than any other drill and **do better work.** No other drill wears as long without repairs. There are no removable gears—no traps—on the Superior. Money spent for Superior implements represents a safe, profitable and permanent investment. **THEY WEAR. THEY LAST.**

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Two and one-half years old. Out of Netherland Stella, by Clothilde Marks Count. The dam of Netherland Stella is Stella Astis, 4th, 60 lbs. milk a day. Grand-dam Imported Stella Astis, 75 lbs. in a day—16,600 lbs. milk in one year. Clothilde Marks Count—30 of his nearest female ancestors averaged 15,000 lbs. milk in one year, and 20 lbs. butter in a week.
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For sale a KENTUCKY SADDLE STALLION. As pretty as a picture. Ideal gentleman's saddle horse. A horse that will attract attention anywhere. For photo., pedigree and full particulars, address
X91, Care of Southern Planter.

For Sale PIGS of the Old Virginia BACON HOGS. Long deep sides. A limited number will be sold at reasonable prices. B. Minorcas, Barred P. Rocks, Eggs, $1. per 15.
Green Bay, Va. JOHN J. GREEN.

ELI CONTINUOUS TRAVEL HAY PRESS.

Since it has become a well-established practice the country over to bale hay, because of the many advantages of handling, shipping and marketing hay in that form, it is no longer necessary to argue in favor of the Hay Press as a means to success in the profitable handling of hay. The farmer or custom baler has, therefore, only to consider which of the numerous balers on the market is best suited to his needs. We present herewith the cut of a hay press that has long been upon the market, and it is well known to many of our readers. This is the No. 2 Eli Con-



tinuous Travel Press, which is manufactured by the Collins Plow Co., of Quincy, Ill. This press covers in a most satisfactory way two great objections that have always arisen in hay presses in the past, *i. e.*, difficulty in feeding and corresponding capacity. In this press we have an unusually large and capacious feed opening, which admits of placing large charges of hay within the press. Then, too, to further facilitate matters, this press is a self-feeding machine with an automatic condenser. This means that when the charge is once introduced within the feed opening, or mouth of the press, it is immediately taken by the self-feeder and condenser, and forced within the bale chamber. This greatly increases the capacity of this press over the majority of presses now on the market. The crossing or connection between the power and the press is exceedingly low and narrow in the Eli, which makes it very easy for the team to step over. This ease is greatly augmented by the fact that the power is so constructed that the team has practically no pulling to do at the moment of crossing the connection. This press and all others made by this firm is equipped with an alarm bell, which signals the operator by ringing when it is time to insert the division blocks. This little device insures bales of uniform length, and makes it possible to pack a car perfectly and with increased weights. If at all interested in presses, write the Collins Plow Co. for catalogue, prices, etc.

A DOLLAR BILL.

What times I have seen, to be sure;
How I've tickled the hand of the poor;
Been soiled by a touch,
Been loved overmuch,
Then barely escaped from the sewer.
Have been traded for corn,
Been crumpled and torn,
Or scented reclined,
By morocco enshrined,
And dropped for a soul to secure.
Of crispness bereft,
I've been drawn as a bet,
Been lost and been found,
Yet I rule all the town,
I'm the "pull" that all seek to procure.
—3495474.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

ASA B. GARDINER, Jr., Manager,
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The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.

We mail a little "Book of the Herd" on request.

SWIFT CREEK STOCK AND DAIRY FARM.



150 YOUNG THOROUGHBRED
JERSEY HEIFERS and BULLS.

FOR SALE AT HARD PAN PRICES.

Blood of the famous **Stoke Pogis, St. Lambert and Coomassie** blended. Paying special attention to breeding my cattle, I have reached a degree of excellence not surpassed by any herd in the State. POLAND-CHINA Pigs always on hand. Write for what you want.
T. P. BRASWELL, Prop., Battleboro, N. C.

FOR SALE.

DEVON BULL CALF (Jan'y) registered. HAMPSHIREDOWN Ram Lambs. BRONZE and WILD Turkeys. BLACK LANGSHANS. COL. DORKINGS, &c., &c.
INDIAN RUNNER DUCKS from first importation to U. S. in 1894 and four strains of imported blood since.
Box 16, Orange, Va. RORT. J. FARRER.

DEVONS FOR SALE

We offer a small herd, about ten head, old and young, with or without 2-yr. old bull. We can also furnish a very desirable lot of Jersey heifers and a young herd of Guernseys. These cattle can be seen any time after July 1st, if due notice is given.
M. B. ROWE & CO., Fredericksburg, Va.

..ESTABLISHED 1856..

The HAYFIELDS HERD of HEREFORDS

FOR SALE—Four Bulls from Six to Ten Months Old.
WM. D. MERRYMAN, - - Cockeysville, Md.

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va.
WALTER WATSON.

DORSET SHEEP

We have a few nice Buck and Ewe lambs to spare.

Apply to D. O. NOURSE, Agriculturist,
BLACKSBURG, VA.

FOR SALE O. I. C. and Chester Pigs, Rambouillet Rams and Ewes, Lincoln Rams Buck and Ewe Lambs of Lincoln and Rambouillet cross. Shropshire Bucks and Angora Goats.

Address JOHN MATHEWS,
East Richmond, Va.

Essex Pigs and Southdown Sheep



If you wish to purchase Essex Pigs and Southdown Sheep thoroughly acclimated and eligible to registry, address L. G. JONES, Bethania, N. C.

Also Half Dorset Lambs for sale.

BERKSHIRES I have for sale some extra fine 8 weeks old BERKSHIRE BOAR PIGS, by "BILTMORE BOY," son of the unbeaten "KING LONGFELLOW," and out of extra good sows. Entitled to registry in Am. Berk. Assn. Also SCOTCH COLLIE PUPS out of working stock.

R. S. CAMERON,
WARE VIEW FARM, GLOUCESTER, VA.

OLD DOMINION PROLIFIC LAYING STRAIN of

B. P. ROCKS and WHITE WYANDOTTES

Young stock ready for shipment September 1st. All stock gauranteed pure and bred for utility. Correspondence cheerfully answered.

Old Dominion Poultry Yards. J. H. SLEDD, Negro Arm, Va.

The Hon. John W. Springer, President of the National Live Stock Association, speaking of the coming Chicago live stock exposition, said to-day:

"I regard conditions in the United States as more auspicious for such a splendid exhibition of breeding stock, fat stock and meat products as will be the International Live Stock Exposition to be held at Chicago next December than there have ever been in the history of the industry. I have made a complete trip over this great country from the Pacific coast to the Atlantic—from the lakes to the gulf. Everywhere prices are good, prospects are bright, and conditions vastly improved. Farmers everywhere are attending strictly to their magnificent crops, while stockmen see a rich harvest in prospect for everything they have to market. I am of the opinion that the coming big live stock show at Chicago not only marks the advent of a more progressive management at the Chicago Stock Yards, but that every stockman will be directly and indirectly benefitted by such a distribution of big prizes, and by having the attention of the whole world directed toward American live stock products, with Chicago as their grand central marketing and distributing point. The small farmer and the big range baron will equally be benefitted of course, in proportion to their holdings. They alike deserve encouragement and a chance to show the world what America is producing in live stock lines. Great shows always stimulate better breeding, encouraging production on one hand and consumption on the other, and there should be such, not only in Chicago, but in every live stock market, beginning with 1900. Chicago has certainly set a rapid pace in the catalogue of prizes for the great show in December. It will certainly be a world-beater."

DON'T DRINK WATER IN GULPS.

MUCH BENEFIT IS TO BE DERIVED FROM NATURE'S BEST BEVERAGE BY SIPPING IT SLOWLY.

As a rule it is much better to sip water than to swallow a glassful at one draught. The exception to this rule is in the morning, when one should drink a glassful or two of moderately cold water in order to flush the stomach while it is tubular. At other times, however, sipping the water is much more stimulating in its effect on the circulation. During the action of sipping, the nerve action, which slows the beating of the heart, is temporarily abolished, and in consequence the heart contracts much more quickly and the circulation in various parts of the body is increased. Another advantage in sipping is the fact that the pressure under which the bile is secreted is considerably raised. It has been stated on good authority that a glass of cold water slowly sipped will produce a greater acceleration of the pulse for a time than will a glass of wine or spirits taken at a draught. Sipping cold water will, in fact, often allay the craving for alcoholic drinks—a point worth remembering by those who are endeavoring to reform.—August *Ladies' Home Journal.*

Tamworth and Poland-China A few nice PIGS for sale of each kind, entitled to registration.

J. C. GRAVES, Barboursville, Va.

Green Valley Poultry Yards,

W. and B. P. Rocks, S. C. B. Leghorns and Lt. Bramah Chickens,

Two months old, 35 cents each; Hens, $1.00 each. Eggs, $2.00 per hundred. Stahl's 50-egg Incubator and Brooder, nearly new, both for $5.00. Pure-bred Shepherd Pups, 3 months old, $3.00 each.

C. H. BENNETT, McDonald's Mills, Va.

ELLERSLIE FARM

Thoroughbred Horses
AND SHORTHORN CATTLE,
Pure Southdown Sheep and Berkshire Pigs.

FOR SALE. R. J. HANCOCK,
CHARLOTTESVILLE, VA.

THOMPSON & TRIMBLE,

SWOOPE, AUGUSTA CO., VA.

Breeders ..of.. **Shorthorn Cattle and Shropshire Sheep.**

...CORRESPONDENCE SOLICITED.

ROCK HILL FARM.

Shorthorns, Shropshire Sheep

..AND..

Poland-Chinas

A Few Choice Gilts Unbred..

B. B. BUCHANAN,
BROWNSBURG, VA.

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SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
FERTILITY OF THE LAND,	$1.25
FEEDS AND FEEDING, -	$2.00
TOBACCO: How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

SUMMER OUTINGS.

By M. W. E.

This is the season when every one who can possibly compass it is taking a summer outing, perhaps on the seashore, with its grand rolling waves, and invigorating breezes, or it may be amongst the beautiful blue mountains, lifting their lofty crests towards heaven, or in the shady recesses of some quiet country spot, resting the tired brain, and reinvigorating the worn frame with the pleasant change of scene and air.

I have often been struck with the fact that amongst those who are seeking health or pleasure in a summer outing, a large number seem to shake off all sense of responsibility about their fellow creatures when at places of public resort. They seem to think they no longer have any concern about the health or comfort of others, except perhaps those in their own little clique. Persons who at home or under any private roof are as considerate and well bred as the majority will, at a public place, talk loudly and stamp about in their room late at night, forgetting the poor invalid in the next room or the adjoining cottage, who perhaps had gone to bed early in the hope of having a quiet night's rest, but who is probably roused up by a gay thoughtless party of young people, coming in from the ballroom at eleven o'clock at night, discussing noisily the events of the evening. Then, again, many of the guests (I might say most of them), at public resorts show such total indifference to the increased trouble they give by their extreme tardiness in coming to their meals. Of course, there is a much greater latitude about this matter at public resorts than at private houses, but people should use this latitude within the bounds of reason, even at public places. Many persons will wait till the latest moment they can, without finding the dining-room door closed, and then they will saunter in, and be extremely critical because they do not have the pick of every thing, forgetting the homely old adage that "the early bird gets the worm." Indeed, a carping, criticising spirit at the table is very rife at most public resorts. People seem to forget that unfailing excellence and absolute perfection are not always to be secured at any table, public or private, and you may set it down as a rule that those who complain most loudly are the ones who have the most inferior fare at home.

The proper spirit to carry with us on an outing is a sincere desire to add to the pleasure of others, as well as to seek our own. Indeed, this is the only true way to find enjoyment, which is a coy, elusive thing, and will not be caught when directly sought for.

Nothing spoils a pleasure excursion more than a fault-finding, complaining disposition, and a tendency to dwell on small annoyances and inconveniences. This spirit mars the enjoyment both of the one exercising it and of others around him. Delays, annoyances and contretemps are more or less an unavoidable part of our mortal existence. To escape them entirely is quite beyond our power, but it *is* within our power to lessen and almost remove their sting by bearing them patiently, cheerfully and silently.

POTASH

phosphoric acid and nitrogen, are the three ingredients which make up a complete fertilizer. Neither one of them can replace the other, nor can the excess of one replace the deficiency of the other. Crop failures are often due to such a deficiency of Potash, in the fertilizer applied.

Farmers can get much useful information about the use of fertilizers and Potash by sending for our free, illustrated books.

GERMAN KALI WORKS, 93 Nassau Street, New York

SEED WHEAT

ECLIPSE Red bearded wheat; very hardy; strong grower; extra broad leaf; yielding 40 bushels per acre with proper cultivation. Price, $1.25 per bushel; 10 bushels, $10 00.

DIAMOND GRIT A red, short berry variety; bearded. With the exception of beards, it is the Fultz reproduced. Outyields any other wheat. We raised 20 bushels from 1 bushel of seed sown in November, a month later than the regular season. Price, $1.50 per bushel; 5 bushels, $6.00.

Bags for each variety, 12 cents each. Order promptly as our supply is limited

BOWMONT FARMS, SALEM, VA.



Elmwood Nurseries.

We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.,



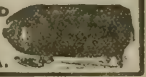
APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,

QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.



POLAND CHINA PIGS.

BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.



WRITE FOR DESCRIPTIVE CATALOGUE.

J. B. WATKINS & BRO.,
HALLSBORO', CHESTERFIELD CO., VA.

FERTILIZERS—FROM FACTORY TO FARM

WE SELL YOU DIRECT. NO AGENT'S PROFITS. NO SALESMAN'S EXPENSES.

VALUABLE PREMIUMS GIVEN FREE.

For premium list, prices, samples and book, write

THE SCIENTIFIC FERTILIZER COMPANY, HERR'S ISLAND, PITTSBURG, PA.

PURE-BRED SHORTHORNS

At PUBLIC AUCTION, SEPT. 12, 1900,

At Weldon Farm, Pulaski County, Va.

The offering will consist principally of Young Cows and Heifers and Young Bulls of very high breeding and individual merit. Catalogues sent on application after 20th of August, W. W. BENTLEY, Pulaski, Va.

We become a nuisance both to ourselves and others by complaining of the heat, the cold, the flies, the dust, the accommodations, etc., upon our travels, or indeed upon any occasion.

While summer is the time to relax from severe study, or hard strain of any kind (if we can), yet complete idl ness is not the best way of resting either mind or body. Therefore, in our summer vacation, it is best to carry on some interesting and improving pursuit, unless we are flitting about too rapidly to render this practicable. What an admirable opportunity for reading does a summer outing give to the busy housewife who at home is too closely occupied to read, except by hasty snatches! And why should she not read, in this little time of leisure, something elevating, as well as interesting, instead of the flimsy trash that forms the conventional summer reading?

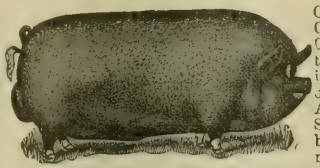
Or how charmingly may a dweller in a city pursue his "nature studies" during his vacation in the heart of the country, going out into the deep, serene forest, to make his own observations on botany, ornithology, or kindred studies, instead of merely reading of these things, amid brick walls and pavements.

But the crowning point of the outing is when we return home, braced up for further (and let us hope better) work, gladly gathering around our own hearth once more, with all our loved home circle, and feeling that no matter how novel, attractive and pleasant may have been the scenes in which we have mingled abroad, there is, after all, "no place like home."

TEACH CHILDREN ECONOMY IN LITTLE THINGS.

Teach children not to waste trifles which they often throw away without thought, and which if saved, might be of use to others if not to themselves. Wrapping paper, pieces of twine, odds and ends of various kinds may do service a second time if put away until the need for them arises. The habit of economy is one that ought to be cultivated, for careful saving makes lavish giving possible. Hoarding is not a vice of childhood, nor should it be encouraged, but the wise husbanding of resources for future expenditure is a valuable lesson that cannot be learned too early.—August *Ladies' Home Journal.*

SIR JOHN BULL



Of ENGLISH birth, of ENGLISH-AMERICAN celebrity, now has progeny from the Crystal Spring House in the Catskill Mountains of New York, to Lawtey, Florida. This is what J. S. Bennett, of Lawtey, Fla., says of Sir John's pigs: "The three pigs arrived April 4, 1900, all O. K., and are dandies." SIR JOHN is now 3 years old. has never been crossed. and is, I think, as fine a specimen of the Berkshire as can be found in England or America. He has 22 sows, representing three strains, as associates. One strain is from the World's Champion Boar, COLUMBIA'S DUKE, Reuben Gentry's great show boar. Bred Sows, Boars, Gilts and Pigs for sale,

PASSAFERN STOCK FARM. THOS. S. WHITE, Lexington, Va.

Registered Berkshires

"MAYOR OF BILTMORE" and "COUNTRY GENTLEMAN" at Head of My Herd.



I can furnish pigs from noted sows, "Eloise," "Bertha," "Miss Linwood," "Queen Quality" and "Queen Narka."

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.

Correspondence solicited,

Southern and N. & W. Rys. T. O. SANDY, Burkeville, Va

FOR SALE

Highlands Stock and Poultry Farm ....



at a very low price and on good terms.

Choice SHROPSHIRE SHEEP and Lambs.

The best POLAND-CHINA, BERKSHIRE and CHESTER PIGS.

Can furnish extra fine DURHAM and JERSEY CATTLE at farmer's prices.

EGGS, B. P. Rock and Silver Wyandotte.

If you want a good home in Virginia, or good stock and poultry, apply to the owner, E. B. WILSON, Fancy Hill, Rockbridge Co., Va.

THE PAGE FENCE CO.'S NEW PLANT AT MONESSEN, PA.

The Page Woven Wire Fence Co., Adrian, Mich., has recently installed a plant at Monessen, Pa., for the manufacture of its goods. We publish herewith a letter from them, which will surely interest our readers.

We now have our own furnaces, bloom rod and wire mills in operation; do our own galvanizing; use up our short wire in making nails and staples, and otherwise save some of the manufacturer's profits. This does not mean that we shall be able to sell fence cheaper than our competitors, but we believe our reasons for charging a little more are legitimate, and that, if perfectly understood, would be generally considered a fair business proposition.

To recount: Every pour of steel from our furnaces is brought to a certain standard before it is turned into the ingot moulds—*i. e.*, the phosphorus and sulphur are reduced to the lowest percentage and the carbon raised until the right proportions are obtained to give the steel the proper tensile strength, toughness and springiness to perfectly adapt it for use in Page Coiled Spring Woven Wire Fences.

The same special care is taken in the manufacture of billets, rods and wire. The annealing and galvanizing processes are given careful attention by experienced, skilled workmen in that particular line, and we are sparing no pains to produce, not the cheapest, but the very best wire and galvanization that we can.

One other feature which makes Page Fences cost a little more than others is that every foot is part machine and part hand made, requiring skilled labor. It is often claimed by others that they can make two rods of fencing to our one, and that is true, because their fence is entirely machine made; but we think the farmer is willing to pay for the extra hand labor if it is better.

During the last twelve months we have been chasing from one mill to another trying to get our peculiar kind of wire and galvanizing, and not being able to secure them at any price has kept us snowed under with orders for hundreds and even thousands of miles of fencing, some of which we were not able to fill in the season for which it was ordered; but now, for the first time in over a year, we believe we are in perfect condition to care for orders as fast as they are received.

Early in July our prices were materially reduced, and we are anticipating a good fall's business.

HOW TO PACK EGGS FOR LONG KEEPING.

The yolk of the egg spoils muck quicker than the white. For this reason it is important that the yolk should be surrounded with a layer of the white. If the egg is placed on the side or large end the heavy yolk will settle to the bottom and come in contact with the shell, which admits the air. If it is placed on the small end it will always have a layer of white between it and the shell. Eggs absorb odors easily, therefore only odorless materials should be used when packing them.—*August Ladies' Home Journal.*

BILTMORE FARMS,
BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO GEO. F. WESTON, SUPT.

Trade-Marks



"Pasteur Vaccine"

SAVES CATTLE FROM

BLACK LEG

Nearly 2,000,000 successfully treated in U. S. and Canada during the last 5 years. Cheap, safe and easy to use. Pamphlet with full particulars, official endorsements and testimonials sent FREE on application.

Pasteur Vaccine Co., Chicago.

BRANCHES: St. Paul, Kansas City, Omaha, Ft. Worth, San Francisco.



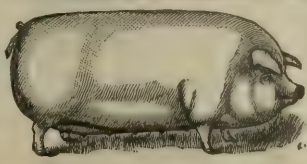
SOUTHSIDE STOCK STUD,

ON ROANOKE RIVER, IN MECKLENBURG CO.

Trotting Horses, Red Polled Cattle, Dorset Horned, Shropshire and Hampshiredown Sheep, Berkshire Hogs, Pedigree Llewellyn Setters and Scotch Collie Dogs.

All Stock Thoroughbred and Registered.

GEO. B. FINCH, Prop., Boydton, Va.



PLEASANT VIEW HERD OF..

IMPROVED REGISTERED **CHESTER WHITE SWINE.**

Both Pa. and O. strains. Can furnish pairs and trios not related. If you are interested in fine swine write me.

ARCHIE C. ROPER,

References: 212 Lock Box, CHARLESTOWN, W. VA.

Bank of Charlestown, First National Bank, Southern Express Agt., U. S. Exp. Agt.

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

NEW ADVERTISERS.

The Ury Stock Farm, Sylmar, Md., is advertising Holstein-Friesians of the bluest blood at reasonable prices. From the large and well-kept herd of this farm, our readers will have no difficulty in securing some of the choicest animals of the breed.

The Hyde Park Hotel, Chicago, offers to send booklet descriptive of its magnificent fire-proof hostelry.

Perryman & Co., Birmingham, Ala., are advertising their well-known "Enterprise" Cotton Seed Huller and Separator elsewhere in this issue. These machines are adapted for plantation use, and are highly recommended. Send for their catalogue if interested.

Messrs. Stratton & Bragg, Petersburg, Va., are wide-awake and hustling young business men. They are after Southside Virginia and North Carolina trade in farm machinery. The "Little Giant" and "Pennsylvania" Peanut Pickers are among their specialties this season. Write for catalogues and circulars.

Hayfield Stock Farm, Cockeysville, Md., is offering Hereford bulls for sale. This is one of the oldest breeding establishments in the East, and Mr. W. D. Merryman, the proprietor, is to be congratulated on such a long and successful career.

Rambouillet sheep and Angora goats are offered by Mr. Jno. Mathews, East Richmond, Va.

Bowmont Farms, of Salem, Va., make quite a departure in their advertising space in this issue of the *Planter*, offering several varieties of choice seed wheat instead of Jersey cattle. Mr. A. M. Bowman, the proprietor, has for many years been one of the most progressive farmers and stock breeders in Virginia, and in all departments of his farming enterprises he keeps pace with the best improvements of the day. Nothing but the highest type of thoroughbred animals and fowls are kept, and none but the cleanest and most highly improved varieties of farm seeds are used. Write them.



HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

POLAND-CHINA HOGS.—Pigs, six weeks old, $4.50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.

Mr. C. C. TALIAFERRO, Nasons, Va.: LAKOTA, May 30, 1900.

Dear Sir,—I generally keep from 150 to 200 sheep, but have never had any to shear as heavy fleeces as those that I purchased of you. I have out of one of your ewes a yearling that was clipped when four months old and was badly wintered, which clipped, when about sixteen months old, 14 lbs. of wool. I think, if it had not been sheared as a lamb and been well wintered, I would have gotten about 18 lbs. of wool from him. You can place my order this spring for two more lambs, which you have priced to me at very reasonable prices.

Yours respectfully, C. B. CHILTON.

BACON HALL FARM.

"GOLD STANDARD,"
Related to Champion "Dale," heads Hereford herd.

DORSET SHEEP.
Ewe Lambs. Ewes bred for September.

BERKSHIRES—All registered stock.

Satisfaction, my motto. **E. M. GILLET, Verona, Baltimore Co., Md.**

NOTES FROM FILSTON FARM.

The Southern Planter, Richmond, Va.:

Gentlemen,—Within the month the Filston Farm has sold four very fine bull calves. We have made it a point to raise for breeding purposes only the very best of the male calves dropped, and this number is kept small on purpose, to improve the quality. In this connection, we found that such of the male calves as were not selected for this purpose, and were sold to the butchers on their promise to sell them only as veal, were, in many cases, sold to neighboring farmers for breeding purposes. We have, therefore, made it a point to alter all these calves and raise them as steers, and while Jersey beef may not be any great profit, at the same time by doing so we are protecting all our customers for calves. The bull calves sold for breeding purposes went to Maryland, District of Columbia, and Pennsylvania, all nearby buyers. A very handsome calf was shipped to Mrs. J. E. McLeran, of Washington, D. C. This was recorded as Gold Pedro Second, No. 58378, and was by Gold Pedro, out of the daughter of Matilda Stoke Pogis, one of the best crosses we have yet developed. Another very fine calf to that enterprising dairy farm, Wm. McLane & Sons, Washington, Pa., also by Gold Pedro, out of Blenina, a daughter of Matilda Stoke Pogis. The third, to DeCourcey W. Thon, on the Eastern Shore of Maryland. This calf, Trustee of Glencoe, is by the pure St. Lambert bull, Trustee of St. Lambert, out of the double granddaughter of Matilda Stoke Pogis, named Lady Booby.

One of the grand dams was the Pride of Carolina imported, and another of pure St. Lambert, St. Alban's Girl. With the exception of a strain of imported blood, this calf is all St. Lambert or Stoke Pogis. The fourth calf was sold to Miss Susie Palmatary, also of the Eastern Shore. This calf is also by the pure St. Lambert bull, Trustee, out of a daughter of Garella Ultimo. We have every confidence that these calves will make marks for themselves, and have urged the buyers to keep careful records of their daughters for milk and butter.

Yours very truly,

ASA B. GARDINER, JR.,
Mgr. Filston Farm, Glencoe, Md.

"Frances," said that little girl's mamma, who was entertaining callers in the parlor, "you came down stairs so noisily that you could be heard all over the house. You know how to do it better than that. Now go back and come down the stairs like a lady."

Frances retired, and after the lapse of a few minutes re entered the parlor.

"Did you hear me come down stairs this time, mamma?"

"No, dear. I am glad you came down quietly. Now don't let me ever have to tell you again not to come down noisily. Tell these ladies how you managed to come down like a lady the second time, while the first time you made so much noise."

"The last time I slid down the banisters," explained Frances.—*Exchange.*

Grade SHROPSHIRE and SOUTHDOWN Sheep For Sale...

I offer 21 one and two-year old ewes at $3.50; 7 ewe lambs at $3.00 each. A bargain in these sheep at this price.

W. M. WATKINS, RANDOLPH, VA.

URY STOCK FARM

HOLSTEIN-FRIESIAN CATTLE, rich in the blood of the greatest cows of the breed. A choice lot of **Young Bulls and Heifers,** sired by Ury Alwina Count Paul De Kol and Count De Kol Metchilde, from dams that are large producers. Our herd is larger than ever before, and we will name attractive prices to breeders desiring the richest breeding. The best is always cheapest. Write stating just what you want.

THOS. FASSITT & SONS, Sylmar, Cecil County, Maryland.

I have For Sale some VERY HANDSOME **POLAND-CHINA PIGS** That were ready for shipment 1st June. They are from the sons and daughters of Look-Me-Over, Chief Tecumseh II, J. H. Sanders, and others as noted in the breeding lists; also a couple of young boars ready for service. Also for sale **Shetland Ponies, Riding and Driving Horses, Red Polled Cattle and Pure-bred Shropshire Sheep, One Imported Buck for sale.**

ARROWHEAD STOCK FARM,

SAM'L B. WOODS, PROPRIETOR. CHARLOTTESVILLE, VA.

The Cyclone Grubber

ONLY $3.00.



It is one of the handiest tools on the farm. Can be operated by one or two men Made of solid steel, and will last a lifetime. It takes up roots and branches thoroughly. Unequalled for grubbing out fence corners. **Agents wanted.** Circular free.

J. G. O'DONNELL, Patentee,
Leon, Madison Co., Va.

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

..AGENTS WANTED..

FRANKLIN DAVIS NURSERY CO., Baltimore, Md.

LIGHTNING, OLDEST AND MOST RELIABLE LINE



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KANSAS CITY HAY PRESS CO 162 MILL ST KANSAS CITY MO

NOT IN THE NEGATIVE.

"Many ludicrous developments happen in the studio of a country photographer, aside from what the chemicals bring out in the dark room," said a man who has photographed rustics for many years. "I recollect one Fourth of July that a young farmer and his sweetheart came to me to have some tin-types taken together. I posed them on a flight of stairs with a balustrade between them. When I came from my dark room after developing the plate, the young fellow stepped up to me and said, 'Sa-a-y, couldn't ye take that over again?'

"'Why, what's the matter?' I asked in surprise.

"'We ain't goin' to like that picture a bit,' he answered evasively.

"'But why not?' I persisted.

"'Wall,' he blurted out, blushing to the roots of his hair, 'she's too danged fur off.' He refused to pay fifty cents for a new sitting, so at last they bore away the tin-types as they were. But the next day he came back to my gallery, very wrathful. 'Sa-a-y,' he fairly shouted when he saw me, 'take that durned girl off this picture. I'm mad with her!'

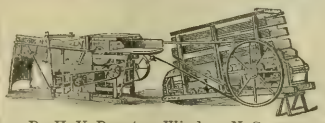
"Often, when I hide my head under the cloth to get the focus, loving couples, confident that I cannot possibly see them, take advantage of the moment to kiss each other fervidly but with great silence. I remember, too, coming out of my dark room one time to find a rustic with one of my bottles pouring a thick dark liquid into the hollow of his hand. 'I guess you don't mind if I use a little of your hair ile,' he said, and promptly rubbed the stuff into the hair. It was a varnish for negatives, made to dry and harden very rapidly, and before I could get that picture taken, hurrying feverishly, he had to go out and get his head shaved. It is hard to believe how 'green' people can really be in this age and generation until a man drives a tin-type studio on wheels through the rural districts of our fair land." Thus concluded the photographer.—Caroline Lockhart, in the August *New Lippincott.*

There was a piece of cold pudding on the lunch table, and mamma divided it between Willie and Elsie. Willie looked at his pudding and then at his mother's empty plate.

"Mamma," he said earnestly, "I can't enjoy my pudding when you haven't any. Take Elsie's."—*Life.*

Mr. J. C. Graves, Barboursville, Va., is advertising Tamworth and Poland-China Swine.

"LITTLE GIANT" and "PENNSYLVANIA" PEANUT PICKERS.



The "Little Giant" and "Pennsylvania" were the first successful Peanut Pickers. They were leaders in 1899. Have added improvements for 1900. No other machines so strong and durable, do the work so well or so rapidly, require so little power to drive them, or are so easily and quickly adjusted to the various requirements in successful operation. Will thresh Wheat, Oats, Rice, etc.

Dr. H. V. Dunstan, Windsor, N. C., averages 300 bushels per day with smallest machine—the Pennsylvania. Some who do custom work have bought the second and third machine. Men who have the time, and the means to equip themselves, make more money "pulling Peanuts" than in any other work. We have small machines for individual work on plantation or large machines for those who wish to do custom work.

"The day is near when there will not be a hand-picked peanut in Virginia, save only for seed," writes a customer who is operating three of our outfits in Sussex county.

For free catalogue, prices, terms, etc, address

STRATTON & BRAGG,

Hardware, Machinery and Engines,

Manufacturers Agts. for Southeastern Virginia and Northeastern N. C.

PETERSBURG, VA.

The ELLIS CHAMPION Grain and Peanut Threshers.



The **ELLIS CHAMPION** has built up its own enviable reputation by the quantity and quality of its work, and the durability and simplicity of its construction.

Mr. Otto Gericke and Mr. Limon Myers, of Dinwiddie, averaged 375 bushels per day for several days with the smallest machine. Mr Luther Spiers, of Sussex Va., who has bought three of the largest size to do custom work with, says he has used other makes of grain and peanut threshers, and finds that none can do as much and as good work as the ELLIS, and at such a small cost for repairs. For free catalogues, prices, terms, etc., address

GEO. W. BURGESS, General Agent, Burgess, Va.

CHARTERED 1870.

Merchants National Bank

OF RICHMOND, VA.

Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.
Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

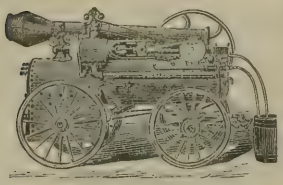
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Surplus and Profits, $330,000

JNO. P. BRANCH, President. JNO. K. BRANCH, Vice-President. JOHN F. GLENN, Cashier.

DIRECTORS.—John P. Branch, B. B. Munford, Chas. S. Stringfellow, Thos. B. Scott, B. W Branch, Fred. W. Scott, Jas. H. Dooley, Jno. K. Branch, A. S. Buford, R. C. Morton, Andrew Pizzini, Jr., J. P. George.

LABOR-SAVING

Implements and Machinery



PEERLESS Engine.

PEERLESS ENGINES and GEISER THRESHERS.

Preferred by wheat growers for perfect work and no loss. Send for illustrated circular of new No. 4 Thresher. REPAIRS for all sizes in stock.

THE GEISER SAW MILLS

Have no superiors. Quality considered, the cheapest made.

A SHORT HAY CROP

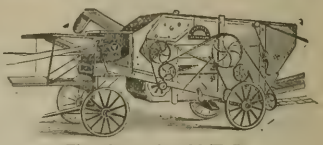
Makes fodder valuable. Prepare to utilize it by getting a reliable Cutter, all sizes of which we carry in stock.

THE COMBINED FEED MILL and HORSE POWER

Is indispensable to every farmer. Grinds corn, shelled or on ear, and is a first-class horse power. Virtually three machines in one.

THE HOCKING VALLEY CIDER MILL

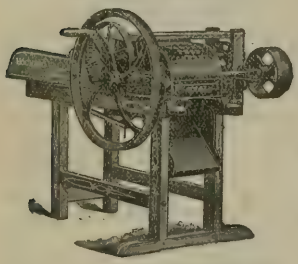
With wood crushing rollers. Imparts no color or taste to juice of apples or grapes.



Threshers—4 to 10 H. P.



Combined Mill and Power.
Indispensable to every farmer.



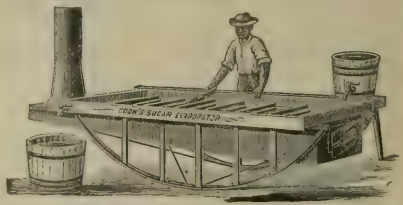
Feed and Ensilage Cutters—all sizes.

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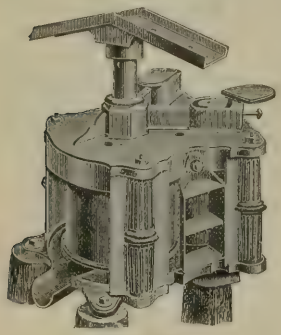
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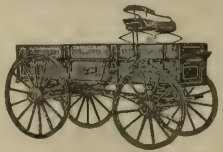


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THE RIDICULOUS CHINESE ARMY.

There was much anxiety over the probable fate of Rev. Dr. Francis E. Clark, President of the Christian Endeavorers, who was in China when the Boxer troubles began, but he is safe. His experience lends additional interest to his article in this week's "Saturday Evening Post" on John Chinaman at Home; His Queer Beliefs; His Ridiculous Army. Dr. Clark writes:

"The army of China is the laughing-stock of the world, and no wonder. It is a synonym for cowardice and not for courage. It is a rabble picked up in the slums, ill-equipped, ill-fed, ill-clothed, ill-paid or paid not at all. Even the Chinese laugh at their own soldiers.

"At a recent public meeting the speaker, an American, urged Christian courage and fortitude, saying that his hearers must endure hardship and be brave like good soldiers. When his Chinese interpreter came to translate this passage he interpolated the remark: 'Of course he does not mean Chinese soldiers.'

"Moreover, these soldiers know that they are constantly starved in rations and cheated in arms and munitions of war by their superior officers. Tons and tons of gunpowder are filched every year from Chinese forts and magazines and sold to the firecracker makers. At the time of the Japanese war hundreds of government rifles and even some cannon were in the pawn shops.

"During the early 'Boxer' troubles a squad of Chinese soldiers was detailed from a fort to guard the premises of some friends of mine at Poating-fu, near Pe king. Night after night the soldiers marched into my friend's compound and camped in one of his out-houses. At last it occurred to him to request the soldiers to fire a salute, so that all ill-disposed persons might know of their presence. To this they gravely replied that they would gladly do so had any powder been given them, but that before the next night they would get some powder and fire the salute at nine o'clock. Thereafter, for a week or more, promptly at the appointed hour, the welkin rang with a tremendous discharge of small arms. But one night it was omitted, and my friend, inquiring the reason, was told that the soldiers were out of wadding. It was afterward discovered that when the soldiers had powder and wadding they had no bullets."—*Saturday Evening Post.*

A well-known divinity professor, a grave and learned man, had five daughters, whom his students irreverently named "Genesis," "Exodus," "Numbers," "Leviticus," and "Deuteronomy."

Beginning his lecture one day, the professor said: "Gentlemen, I wish to speak to you about the age of Genesis."

Roars of laughter came from the students.

"Genesis is not so old as you suppose," continued the professor.

More roars—so long continued, indeed, that the worthy man had time to think before he made the next remark. He said timidly—and he managed to hit the mark this time:

"I may not be thinking of the same Genesis as you are."—*Collier's Weekly.*

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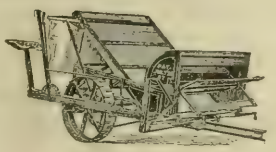
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The Dispatch, Richmond, Va.	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harpers' Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeders' Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harpers' "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 25
Cosmopolitan "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan, "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

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A VISIT TO THE EMPRESS DOWAGER.

ONE WHO WAS PRESENT TELLS OF THE HISTORIC EVENT IN THE CHINESE COURT.

Frank G. Carpenter, who is now in the East, sends to The Evening Post a long article about the Empress Dowager and China, his facts having been gathered only a few days before the present troubles broke out. Two years ago the Empress Dowager set aside all precedents and received the ladies of the Foreign Legations at Pekin. One who was present told Mr. Carpenter about it. Among other things she said;

"Her Majesty was dressed in a pale yellow silk gown, beautifully embroidered with flowers and dragons of the same color. She wore the headdress commonly worn by elderly Chinese women, her hair being fastened in a knot at the back just below the crown, the front of the head and a part of the forehead being concealed by a silk band heavily embroidered with pearls of large size.

"I was struck with Her Majesty's youthful appearance. She was sixty-four, but she looked ten years younger. Her face was plump and free from wrinkles. She had a high forehead, elongated perhaps by the custom of the Chinese ladies of pulling out the hairs at the edge of the forehead with tweezers. She had a strong face and in youth must have been very pretty. During the audience she frequently smiled, and I could see no signs of that cruelty with which she has been charged.

"Her Majesty made us welcome to the palace and to China. She said she was glad indeed to receive us as foreigners, and that we should be friendly with one another, for were we not all of one family?

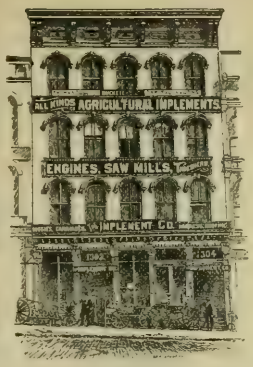
The banquet was fine, being made up of many courses and consisisting of both Chinese and foreign dishes.

"After the banquet the Empress Dowager again met informally with the ladies, drinking tea with each of them in turn, and in some cases throwing her arm about one and embracing her.

"At this time she gave each lady a present of a beautiful gold ring set with a pearl as big as a marrowfat pea, three silk dresses from the royal looms and a set of two dozen combs. Throughout the whole audience she was exceptionally gracious, and her manners were as polite and affable and at the same time as dignified and ladylike as could be those of any Empress of Europe."—*Saturday Evening Post.*

WHAT TROUBLED PAT.

An old Irish laborer walked into the luxurious studio of a New York artist and asked for money to obtain a meal, as he was too weak to work. He was given a quarter and departed. One of the young lady art students who was present said: "Mr. M., can't we sketch that old man?" M. ran out and caught him, and said: "If you want to make a dollar, come back. The young ladies want to paint you." The Irishman hesitated, so M. remarked: "It's an easy way to make a dollar." "Oi know that," was the reply, "but Oi was awonderin' how Oi'd git th' paint off."



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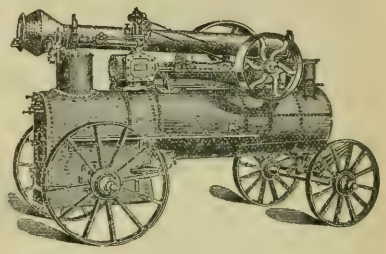
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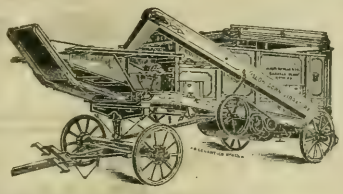
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A DOOLEY IN THE CABINET.

Mr. Long, the Secretary of the Navy, gave the final Cabinet dinner of the season on board the yacht Sylph. It was Mr. Long who thought of the idea of giving this official function aboard a luxurious boat on the Potomac. He is always individual, and never does what other people do.

The Secretary of the Navy announces that his very position compels him to entertain on water instead of land, and every member of the Cabinet confesses that no dinner is looked forward to with such anticipation as that given by Mr. Long.

"What's Long going to do, I wonder?" is the social question that interests the Cabinet for weeks before the evening arrives. And at this last dinner he certainly gave them a surprise.

It was in the form of a Dooley letter, read aloud by Mr. Gage, Secretary of the Treasury. Mr. McKinley has long been in the habit of reading to the Cabinet Mr. Dooley's weekly letter on some issue of national politics. The "hits" on the public officials are very much enjoyed.

Taking this as a cue, Mr. Long, when coffee was served, announced that, according to custom, Mr. Dooley's latest letter would be read, and that it was written for the occasion.

The host added that Mr. Dooley, with characteristic insight, had named his article, "Why no Cabinet member can be nominated for the Vice-Presidency."

Secretary Gage read the letter, and in dialect, spirit, humor and keen penetration it bore so verily the hall-mark of Dooley that the guests were kept in a gale of merriment. It was written in a particularly happy vein, and was filled with so many personal allusions, and with so many jokes that referred to doings or discussions in the Cabinet, that there were shouts of laughing amazement. The President himself is said to have enjoyed it more than anything else written this year.

Finally, there came the explanation—an explanation that elicited more applause than did the original reading. It was no Dooley letter to which the Cabinet had been listening—for the Secretary of the Navy had written every word of it!—*Saturday Evening Post.*

NINE SAFE RULES.

Seldom has there been better advice for the conduct of the human family than is boiled down in nine comprehensive antitheses: Drink less, breathe more; eat less, chew more; ride less, walk more; clothe less, bathe more; worry less, work more; waste less, give more; write less, read more; talk less, think more; preach less, practice more. To follow these is to strike for better health, further popularity, and greater success.

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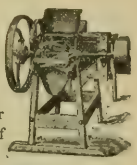
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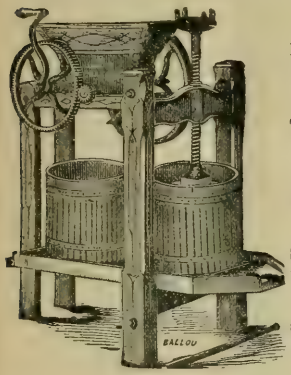
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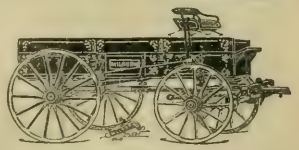
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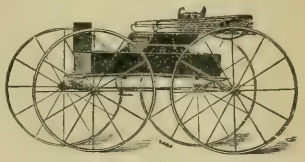
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Southern Planter

A MONTHLY JOURNAL

DEVOTED TO

Practical and Progressive Agriculture, Horticulture, Trucking, Live Stock and the Fireside.

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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, September, 1900. No. 9.

Farm Management.

WORK FOR THE MONTH.

Since writing our article on Work for the Month for the August issue, the drouthy conditions therein referred to as affecting the crops of this and the adjoining States have unfortunately continued and with increased intensity. The temperature has been higher on several days in this State than in any other part of the country, reaching 100.3 in the shade on one day, and averaging over 95 for days together. Such a temperature as this following on the hot dry weather we had during much of July, and the total absence of even thunderstorms or light showers, has placed the corn, tobacco and forage crops in a perilous condition over a large area of this State, and also over a considerable part of the adjoining States. Whatever the weather may now be, we are afraid that at best not more than half a crop of corn can be made here, and in many counties not even so much as this. In several sections, farmers are cutting down the crop to save the fodder. Some relief, it is true, has been had from a very heavy rain on the night of the 22nd August. This will possibly save the late planted corn from being as great a failure as would otherwise have been the case, but cannot affect the yield of the earlier planted crop.

The effect on the tobacco crop is likely to be a very considerable reduction in the weight of the crop, both bright and dark suffering, the dark heavy type especially being affected, as the section of this State in which that type is produced has been more severely hit by the drouth than further South where "brights" are more grown. There is, however, likely to be some compensation for the loss of weight in advanced prices, as the markets have already responded, prices being distinctly higher for all grades, with a hardening tendency. We are afraid, however, that much of the crop will be of a light, trashy character, wanting in body and gum.

Fodder crops have suffered severely, and are much reduced in area from what would have been the case had we had normal weather. The land for the past month has been so dry and hard that it has been almost impossible to break it and seed the crops advised last month.

The cotton crop has suffered in common with other crops, the impairment in condition in this State and North and South Carolina being considerable. Only in Texas is the condition above the ten-year average. In North Carolina it is 7 below average; in Louisiana 10; in Georgia 11, and in South Carolina and Virginia 12 points below, whilst in Mississippi it is as much as 26 points below.

This is a sad record to make for the South Atlantic States as the result of the year's work so far, and that at a time when it is too late for much to be done to make good deficiencies. The wheat crop is the only one upon which the farmer can look with satisfaction. The yield of this crop has been generally good, and the quality first class.

The farmer, however, less than any other man, can afford to sit down and lament over what has been. His only chance of salvation is to be up and doing, and by renewed effort seek to put himself in a position to carry as much of his live stock through the winter as possible, and get his land into as good condition for producing crops another year as possible. The Southern farmer has not often to complain of serious damage from drouth, but the experience of this year should be such as to convince him that he cannot afford to neglect those means which are within his reach to protect himself from loss when such a season comes. Where farmers have followed the advice we have so constantly and repeatedly given, to plow deep and to subsoil their land before planting corn, and to cultivate level, the effects of even the present severe drouth have been comparatively harmless. We have had in the office within the past week a number of farmers who have followed this advice, and they have all the same report to give,—viz: that although their corn crop is somewhat injured, yet that they will still make a fair crop. One gentleman to-day said that although he had had only one good rain on his crop since it was planted, yet that it was from 10 to 12 feet high, and that he had counted from 2 to 8 ears on the stalks all through the field, and that these were filling well, and this although the crop was not growing on river low-land. He has sorghum and peas ten feet tall and full of life and vigor, and will not lack for feed for a heavy head of live stock all through the winter. This might have been the position of many, if not most, of our farmers had they heeded our advice. Now, at the commencement of what is practically another crop season, is an opportune time to once again reiterate our advice to plow deep and to subsoil for the next year's crops. We would like to see the fall and winter months largely given up to attention to this advice after the wheat and winter oat crops shall have been seeded.

In our last issue and in this one, will be found advice as to the preparation of the land for and the fertilization and seeding of the wheat and winter oat crops. To these articles we refer our readers. We want to add one word to what we have said: Do not be in too great a hurry to sow wheat. Whilst we have not suffered so severely from the ravages of the Hessian fly as have some other of the States, yet we have had some injury done by it. The only way to avoid injury is to wait to seed until we have some cold weather. Better that the wheat plant shall be a little weak going into winter than too proud and infested with fly. Our winters are not usually so severe as to call for a very strong growth of wheat before its commencement in order to ensure a good plant in spring.

Although late in the year to plant fodder crops, yet where, from failure of earlier seedings, there is likely to be a scarcity of feed, we would yet sow peas and sorghum and millet to a limited extent. Though these crops cannot be expected to make a full growth, yet if frost holds off, as it frequently does, until late in October, much feed may be made that will prevent the necessity for having recourse to the hay and fodder crops until the winter is well advanced. Sixty days of fine open weather will allow peas, sorghum and millet to make much growth, especially on land so warm, as is the case now. In saving these crops when the days are short and the power of the sun is fast waning, they should be given all the sun and air possible during the day, but be cocked up at night to keep out the dew. These crops may also be made to go much further and be stored in a much less dried condition if they are placed in the barn or stack in alternate layers with good, sweet well dried wheat or oat straw. The straw will absorb the excess of moisture from the forage crops and permit a good cure being made, whilst at the same time the straw itself will become more palatable as feed and be eaten with relish, and thus largely increase the bulk of the feed.

Sow rape, ruta bagas and turnips as soon as the land can be got ready. These are crops which always make the best growth in the cool fall months, and they will be found wonderfully useful in feeding live stock of all kinds. Three or four pounds of seed will sow an acre, and the cost is therefore not great.

Sow crimson (German) clover and sand vetch freely. They may be sown either separately or together, and are better to have a light seeding of wheat, winter oats or rye sown in with them. The grain holds up the clover and vetch, and makes the crop easier to cut and easier to cure, besides adding largely to the amount of pasture.

The seeding of grass and clover should be pushed as fast as the land can be got ready. In our last issue we wrote fully on this subject, and refer our readers to that issue. In several of our Northern exchanges we find a number of articles commenting on the wonderful crops of hay grown by a gentleman in one of the New England States who is making an average of five tons of hay to the acre. Whilst we do not think it possible for many Southern farmers to make such an average, from the fact that our lands are not, as a rule, sufficiently rich nor our climate sufficiently moist to enable this to be done, yet we do not doubt but that

by following the same system as this gentleman practices, we can readily double our average crops. The secret of his success is the most perfect preparation of the soil, the destruction of all weeds by compelling their germination by frequent cultivation before the seeding of the grass seeds, and by heavy fertilization with bone meal, potash and nitrate of soda—the bone meal and potash applied at seeding and the nitrate of soda in the spring. Whilst we are strong advocates for the extension of the area seeded in grass in the South for many reasons—amongst which are that only in that way can we hope to see the area of abandoned land reduced, as it is impossible to obtain labor to reduce it in cultivated crops, and further, because the South is a large buyer of hay from the West, and not not until we produce more grass at home can we hope to see the increase of cattle and sheep which we ought to have—yet we doubt much whether in the South we cannot, with more profit, give this extra fine preparation and heavy fertilization to the land devoted to the production of fodder crops, such as corn, cow peas, soja beans, sorghum, millet, the vetches and crimson clover. Instead of growing five tons of hay to the acre, we can, with such preparation and fertilization, grow from ten to twenty tons to the acre of corn and sorghum, and from five to ten tons to the acre of soja beans and cow peas. These crops are richer in feeding matter than hay, and of several of them, we can grow at least two crops in the year. The peas, beans and clovers are also at the same time enrichers of the land, and enable us to grow heavier crops of other things at less cost for fertilizer. Wherever labor can be commanded to handle these crops, and capital can be invested in stock to consume them, and apply the resulting manure to the land, we believe they will realize to the farmer and to his farm more net profit than even five tons of hay to the acre.

Were it not for the conservatism of our people and their proneness to keep in ruts, we should feel that we were insulting them in a season like the present to once more insist upon the folly of pulling fodder, and in urging upon every one to cut down the corn crop at the root and to save the whole crop. Your stock will need all the fodder and you can save, and the shortness of the corn crop will enforce the necessity for economy on the farm. There is no economy in growing a crop and then wasting half of it by leaving it in the field.

In filling the silo, if you are fortunate enough to have the crop wherewith to fill it, do not hurry the work unnecessarily. The silage will be better and the silo will hold more if filled slowly. Say fill half the day and cut half the day. Cover with swale hay, chaff or cotton seed hulls. Water this cover freely, and it will mat together with mold and make a perfect seal over the silage.

See that proper provision is made for airing the tobacco as the crop ripens; cut when ready and handle carefully. Good tobacco is going to sell well if cured as the market calls for it. Ascertain from the dealers what is the type of curing called for, and then endeavor to secure this. We are aware that to comply with this advice is often more than the grower can accomplish, as the color of the crop is so largely affected by the soil on which it is grown and the season. An experienced man (and no other ought to cure tobacco) can, however, usually cure the crop so as to meet the requirement of some market.

See to it that the needed repairs and cleaning up of barns, stables, and dwellings have attention before the cold weather sets in Southern farmers are much too negligent of these matters. They are standing in their own light when they do not make their farms and homes as neat, tidy and comfortable as possible. Paint and whitewash are not costly.

WHEAT SEEDING.

In our last issue, we wrote at some length on the preparation of the land for wheat seeding, and we therein laid stress upon the importance of a fine preparation of the land as a controlling factor in the production of a good crop. We think it well to say a few words more upon this subject, moved thereto by the fact that on account of the long and serious drouth through which we have passed there has been but little if any opportunity given for the commencement of the work of fallowing the land for the wheat crop. This is going to cause a great pressure of work to be thrown upon the teams and hands during this and the following month, and the temptation will be great to seed without securing as fine a seed-bed as should be made. We want to say, and to say emphatically and advisedly, that it will be better to seed a little later than one would wish rather than to sow on a piece of land not in proper condition. Usually, we have fine open weather in the South up to the end of November, and if wheat is only seeded upon a well prepared bed before the end of October, it can make quite as much growth before winter sets in as will enable it to go through the winter in good condition for a vigorous growth in the spring. If, however, it be seeded on badly prepared land, even in September or the early part of October, it will suffer much more from the effects of freezes and thaws than if seeded later. Few farmers fully realize how important is the necessity,

not only for a fine deep solid bed, but also how neces sary it is that the soil of the bed should be thorough ly mixed before seeding. The question debated ought not to be is the land fit to sow, but whether it can be made more fit and yet not unduly delay the sowing. Ten bushels of wheat extra per acre can easily be got from a piece of land *by tillage alone*, all other condi tions being the same. This is not mere assertion, but has been proved over and over again by experience. Every additional working of the land, when in a proper condition to work, will make available plant food lying inert in the land which otherwise will be lost to the crop. This food can be got in this way at less cost than from the fertilizer merchant, and it will also result in more permanent benefit to succeeding crops than when purchased. Besides all these consid erations, it is more easily within the competence of most of our farmers to get it in this way than by pur chasing it. A word to the wise should be sufficient. Try what we advise. Prof. Hunnicutt said recently:

We once selected one acre in a twenty-acre field, average spot, and plowed and harrowed this acre four teen times right along before we quit. We then plant ed and cultivated this acre just as we did the rest of the field, running the rows right along through it.

The yield was much more than double any other acre. This has continued to be true for five years in all kinds of crops. All through the growing season, this acre can be distinguished as far as you can see the field. All crops grow off quicker and yield heav ier. "Culture is manure" is true.

A SEVEN-YEAR COMPARISON OF VARIETIES OF WHEAT.

About sixty differently named sorts of wheat are an nually grown in comparative test at the Ohio Experi ment Station. In this test the different varieties are grown on plots of one tenth acre, the plots being ar ranged so that a standard variety, Penquite's Velvet Chaff, appears on every third plot in the series, and in computing the results the yield of a given variety is compared with that of the two plots of Velvet Chaff between which it grew.

The treatment of the crop is as nearly uniform for all the varieties as possible. The land was selected, in the first place, for its apparent uniformity; a tile drain is laid at one side of every plot; the plowing is done across the plots; all are manured alike with barn yard manure, distributed by a manure spreader, which also is driven across the plots, thus giving no oppor tunity for differences in time of plowing or manner of manuring to affect the yield, and the greatest possible care is taken in seeding, harvesting and threshing.

Below are the general results of this test for the seven years, 1893 to 1899, inclusive.

The following sorts have exceeded the Velvet Chaff in yield: Poole and Mealy by an average of more than four bushels per acre each; Red Russian by nearly four bushels; Nigger, Early Ripe, Currell's Prolific, Gypsy, and Egyptian by two to three bushels; Medi terranean, New Monarch and Democrat by one to two bushels, and Bearded Monarch, Valley, Deitz, Leba non and Hickman by less than one bushel each.

Of the sorts which have fallen below Velvet Chaff in average yield are Jones' Winter Fife, which has aver aged more than three bushels less; Theiss and Silver Chaff, between two and three bushels less; Royal Aus tralian (or Clawson), Early Red Clawson, Yellow Gypsy, Missouri Blue Stem, New Longberry, Lehigh and Martin's Amber between one and two bushels less, and Fulcaster, Hindostan and Early White Leader, whose average yield has been less than a bushel below that of Velvet Chaff.

These tests have been made on a rather thin, some what sandy clay. On gravelly loams the Valley has made a relatively larger yield than that quoted above.

No variety has proved exempt from attack by the Hessian fly, but Mealy, Mediterranean, Fulcaster and Clawson seem to suffer less from the fall attack of this insect than most other sorts.

The Ohio Station has never succeeded in growing spring wheat.—*Bulletin Ohio Experiment Station.*

As supplementary to the foregoing, it may be added that in a series of experiments made at the Pennsylva nia Experiment Station Fulcaster and Currell's Pro lific are amongst the first five varieties out of eleven tested over a series of nine years. The average yield of Fulcaster for nine years was 32⅔ bushels, and Cur rell's Prolific 30¾ bushels. Fultz gave an average of 29 bushels for nine years. At the Blacksburg Experi ment Station, in this State, as the result of five years' test of different varieties, the following were found best adapted to that section, viz.: Tuscan Island, Ful caster, Tasmanian, Red Fultz and Poole. On an av erage of two years each of these varieties made over 25 bushels to the acre. Whilst none of these tests can be asserted to be positive evidence as to the varieties best adapted to be seeded in the different sections of the South, yet they afford some guidance at to what may be expected of different varieties. It may, how ever, usually be accepted as a safe rule that a variety locally raised, and which has been found to do well under normal conditions, is the one best adapted for that section. All new varieties require to become ac climated before likely to do justice to their capabili ties. Whatever variety is selected, see that it is clean, plump and as heavy as can be gotten. All shrunken grains should be blown out.

CRIMSON CLOVER AND THE VETCHES.

Editor Southern Planter:

All over the upper South the *Vicia sativa*, or winter vetch, is becoming naturalized, and we are continually getting specimens from people in various sections ask ing what the plant is, as they find it growing on their land and their cattle are fond of it. This vetch, while a good winter growing plant and one which stock eat greedily, is yet a lighter cropper than the Hairy vetch.

This last makes a much heavier growth, and is, when in bloom, one of the most showy of plants used for forage. While it will grow on thinner soil than the Crimson clover will, it nevertheless, like the clover, likes to be fed with mineral fertilizers. It seems likely also that the Hairy vetch will naturalize itself here and come again from self-sown seed, as we have seen a good deal of it this spring about the fields where the crop was grown last year. No one need fear, however, that the plant will become troublesome as a weed, for it is easily destroyed where not wanted. We are intending to make an experiment this fall of sowing the Hairy vetch and Crimson clover together. We have noticed that while the vetch makes a tall and apparently heavy crop, it dries light and lacks bottom crop. This the clover will, we think, supply. We propose to sow ten pounds of each seed per acre, and feel sure that if one fails, the other will be certain to catch, and if both succeed, we will have a far more valuable forage crop than with either alone. Farmers throug out the South are fast coming to realize that they can grow their nitrogen cheaper than they can buy it, and that by using the legumes in connection with liberal dressings of phosphoric acid and potash, they can get heavy crops of forage while growing the nitrogen and storing it in the form of organic matter in the soil for the succeeding crop.

The great advantage of the Southern farmer lies in the fact that he can keep up some growth and nitrogen-collecting even in winter through the use of the winter growing legumes, and can keep up the process in a rapid manner during the heated season with the cow-pea. With these advantages it should be easy for the southern farmer to improve his soil; and it is easy when once the conditions for success are well understood. Nothing from nothing, and nothing remains. If our soil is deficient in the plant food which the legumes need, it must be put there before we can expect them to do for us the work of gathering in the nitrogen from the air. They will do some of this perhaps on the poorest soil, but to do much of it, they must have the conditions essential to their perfect growth. The soil may have fertility enough, but may be destitute of the microbes that live on the particular legume we are sowing. Hence, it has been found in the South that Crimson clover rarely does well the first time it is sown, but will do well the next season on the same land.

We have recently had a letter from a friend who has had the same experience with the cow-pea. The reason for all this lies in the fact that the nitrogen gathering microbes were not present in the soil, but had increased to such an extent as to make the crop a success the following year. In sowing any of the legumes on land on which they have never before been grown, it is a good practice to take some measures for the infection of the land with the important forms that live on their roots and enable the plant to gather nitrogen. Biological students have been making pure cultures of these things, and are selling them under the name of "Nitragin," for the purpose of infecting the soil of fresh fields. But it is not necessary to go to the laboratory for this. If there is a field in the neighborhood on which the clover, vetch or other legume has been a success for years, get a little soil from that field and scatter it by hand over the new field, and it will be much more rapidly infected than if we wait for their slower natural coming. There is one fact connected with the feeding of these plants that is important. They do not need applications of nitrogen if the soil is well infected with the microbes, but only need liberal treatment with phosphoric acid and potash. While an application of nitrogen is quickly washed away from the soil after nitrification, or change into a nitrate, the mineral matters are not readily lost to the soil. This is particularly the case with the potash, for while the phosphoric acid is largely concerned in the ripening of the seed, the potash is largely retained in the roots, and the tops that are cut at maturity for hay have at that time less potash in them than at an earlier stage of growth. Hence, a liberal application of phosphoric acid and potash to the legume crop can be depended upon for an after effect on the following crop. The nitrogen, too, being held there in the form of organic matter, the plant in the succeeding crop not only gets the benefit of this, but a large part of the potash that was used the season before to increase the growth of the nitrogen collecting crop. August and September are the months when the Southern farmer should avail himself of the aid of the valuable winter-growing legumes, Crimson clover and vetch. We do not yet know that the mixture of Crimson clover and Hairy vetch will be a success, but we throw out the hint for experiment. If you do not care to experiment, sow the Crimson clover or Hairy vetch by itself or in mixture with a little rye. If we were sowing either separately, we would always sow a little rye with the seed, for the rye will shade the young plants from the hot sun while young, and will hold up the vetch which is inclined to tumble about. The first week in September is about the right time to sow here. Sow earlier north of this, and later south. A dressing of 300 lbs. per acre of acid phosphate mixed with 50 lbs. per acre of muriate of potash will be about right, and will pay not only in the legumes, but in the succeeding crop. It will be best to prepare the land sometime previous to sowing, and to harrow the fertilizer in well at least a week before sowing, so that the seed may not come in contact with the caustic properties of the potash.

W. F. MASSEY.

THOROUGH PREPARATION.

Editor Southern Planter:

"Before you plant, don't say you can't
Prepare your ground quite well,
For if you don't, I'm sure you won't
Have any crop to sell."

"What is well begun is more than half done," an aphorism that applies to agriculture as forcibly as to any vocation of life. All ground should be thoroughly prepared ere the crop is planted.

Thorough preparation means first, that the land must be plowed deep. Where the subsoil is near the surface, the turning-plow should reach the subsoil, and by all means a subsoil plow should follow. Harrow well, and in two weeks flush with the double-shovel. Again harrow, and your ground is well prepared and ready for planting.

With land thus prepared for corn, the crop is more than half made. Subsequent tillage should be often and shallow. Never use a shovel plow or bull-tongue in the corn-field after planting. Cultivate level. The past season in my county (Franklin, Va.) has been most propitious for testing and contrasting different modes of cultivation of the corn crop. During the last forty eight days in this neighborhood not enough rain has fallen to wet the ground an inch below the surface. Where the shovel plow or one-horse turning plow was used in cultivation the consequence is frightfully baneful. Where the small tooth cultivator was used and the cultivation shallow the prospects are two hundred per cent. more hopeful. After the corn is fifteen inches high, plowing with a shovel plow amounts each day to a financial loss of $10.00, or at least twenty per cent. Deep cultivation after planting destroys, lacerates and bleeds the roots or veins of the plants, and unless such working is closely followed by a gentle rain (the only panacea for such drastic and unscientific farming) much detriment must surely ensue. "But our daddies farmed that way," say Dick, Tom and Harry. Yes, our daddies thirty or forty years ago thought children could not be raised healthy without being periodically bled—veins cut—yes, drawing from the child the sap of its life. Thirty years ago doctors were theoretically convinced that ice-cooled water was sure death to the fever patient. Those fool doctors killed their millions ere they would change their traditional ideas. Now, ice and ice water is the *summa summarum* of treatment in cases of fever.

Cultivation after planting is more cheaply done by the multi-tooth cultivator. Twice between the rows is generally sufficient to finish the row; frequently one time answers well, especially where corn is planted in check. Cultivate after every hard rain as soon as the ground is in order; three or four inches is sufficiently deep.

Franklin Co., Va. G. W. B. HALE.

A BETTER MOISTURE SUPPLY.

Editor Southern Planter:

The most serious question confronting the American farmer to-day is how to obtain a better supply of moisture for growing crops. Not a season passes but in some localities the crops are literally burned up from drouth. In no season is there a full yield, and not more than half a yield generally.

With the gradual hardening down and exhaustion of the top of the soil, the effects of short periods of drouth are felt to a much greater extent, even though the normal rainfall of the State may be the same.

In the last weekly bulletin of the South Carolina Weather Bureau we are told that "the high temperature, the absence of rain, the drying winds, and the bright sunshine, were conditions extremely damaging to all crops, checking their growth, wilting, burning, and withering them." Correspondents make reports of a gloomy look indeed.

What is the remedy? One remedy which was plainly apparent to me during my visits with the planters of South Carolina, especially during the spring and summer, is that the soil must be much deeper stirred. The plowing is not more than three to four inches deep at most. Below that is a hard pan, into which the roots of the plants cannot penetrate, and no amount of cultivation can keep it moist, more especially as there is but little humus in the soil to hold moisture. The roots of the plants are right on top of the ground and entirely unprotected against these drouthy spells.

All suggestions of deeper plowing and an abundance of pea-vines is met with the reply that to turn up two inches more soil will kill the land.

This is not the case, and I say it most emphatically. To turn up the subsoil with no preparation would not grow crops. But the planter who will turn up the soil in November an inch or two inches deeper each year for five years, and thoroughly incorporate it with composted stable manures, will find his crops to suffer but half from the drouths generally, and the yield to be one-half greater. Let any one who doubts it try five acres with a good strong two mule plow and an abundance of cow-peas in summer and vetch or crimson clover in winter, and see.

Dr. Stubbs, the eminent director of the Louisiana Experiment Station, states in his report that all shallow poor soils suffer much more in periods of drouth than deep fertile ones. This is the concensus of all scientific reports, and it is exceedingly strange that the Southern planter is so long in finding it out. I believe that there is a simple method of irrigation practicable all over the South, but the first step in irrigation is to deepen the soil to receive and hold what water may be applied. More than half the rainfall runs off or evaporates because it cannot get down into the soil.

New York. S. S. BOYCE.

"THE LITTLE FARM WELL TILLED."

I would like to have some of your practical suggestions on the following subject: "How can a living be had out of a farm of forty acres?" I am trying to solve this by experience, but being an *inexperienced* farmer, I must confess the way does not seem clear. My situation is just this: I live close to a town of about three thousand inhabitants. My whole place contains about thirty-five acres of fair land, gray soil with clay subsoil. Five acres has been set aside for my house, garden, chickens, stables and orchard, the latter to consist of one and a half acres to be planted this fall. The balance is divided as follows: Five acres in pines, thirteen acres pasture, twelve acres a flat on two branches in fair condition for tilling. I have cut and gathered forty two-horse loads of pea vines from this flat within the last few days. At present I own two mules, one brood mare and a family horse, four hogs, five cows and a hundred chickens and ten sheep. I fear there is *too much diversity* in this conglomeration for so small a place, and yet I want to keep all the stock practical for the fertilizer they make. The conditions of my surroundings are these: All the town lots are of good size, so every one has a garden, making trucking impractical; everybody keeps one or more cows, so dairy farming won't go, although butter sells well in late fall and winter, bringing 20 to 30 cents, eggs at 8 to 20 cents, according to season, averaging 12½ cents; poultry—spring—8 to 15 cents, hens at 25 cents each. Strawberries sell readily at 10 cents per quart—good demand for limited quantities. Good market for lamb, mutton and beef. Labor scarce and high. The question is, What line shall I pursue? I do not care to raise tobacco. A few pounds of butter will glut the home market. It is so with every other product I can raise. My belief is that the small farm will pay the best, but how?

"ANXIOUS TO SUCCEED."

The foregoing letter deals with a subject of so much interest to hundreds of people that we have decided to publish it in full and ask for discussion upon it through the columns of the *Planter*. We offer our suggestions on the subject as an opening for the discussion, premising that our suggestions are given as adapted to a farm in the section from which our correspondent writes—a tobacco and cotton section.

How to make a living upon a farm so small as forty acres in a section where there is not at hand a market for more than a very limited quantity of truck, dairy and poultry products, is a question difficult of solution, and yet we believe not incapable of being solved. It would, however, be much easier in such a location to make a larger place, say, one of from 100 to 150 acres, pay and provide a living, because of the ability on such a place to economize in the cost of labor by the use of labor saving machinery. Upon practically only thirty acres of tillable land (as in this case), the use of machinery to the fullest extent is practically out of the question, as the amount of capital necessarily locked fast in such machinery for which only limited use could be found would be too heavy a charge upon the place, and yet with the fact stated that "labor is high and scarce," it will be necessary to avail one's self of as much machinery as can be afforded if the problem is to be satisfactorily solved. Notwithstanding the fact stated that nearly every one in the small town keeps a cow or two, we yet think that the way to success on this small farm, as in most large ones, lies through live stock, but this must be judiciously selected for the special purpose in view. At the outset, we would say that no farm so small as forty acres can afford to carry so much team as two mules and two horses. A pair of horses—or rather, a pair of mares, of which one shall have a colt every year—is the very largest team which should be kept. These will be ample to do all the work of the place, and should have leisure enough to meet the requirements of the owner for family use. The other stock kept should be dairy cows, a few sheep and a couple of sows to raise hogs for home use and a surplus for sale. The number of cows to be kept should be regulated largely by the demand there is for butter in the winter in the town, as this should, in our opinion, be the primary source of income. Winter dairying should be the business of the farm. The object should be to keep four or five cows of high butter producing capacity—not less than 300 lbs. per cow per year. For this butter there would appear to be a local market in the winter, and we doubt not but that if the quality was kept at the highest more than the product of four cows could be sold at the season when the price was the best. Any surplus could be shipped profitably to the large city markets. To enable this stock to be carried, the tillable land outside the garden and orchard of, say, five acres, should be divided into three fields of about eight acres each. The rotation of crops on these fields to be as follows: Field No. 1 should be seeded to wheat or winter oats in the fall. This crop to be followed by cow peas or cow-peas and corn or sorghum, or part in each of these crops to be sowed in July, cut and cured for hay, and followed with sand vetch and German clover for winter and early spring pasture. This crop, after pasturing, to be turned down in April or May, and the field planted in corn. Cow-peas to be sown in part of the field at the last working of the corn, and pumpkins to be planted with the corn in other part of the field. After the corn and pumpkins are harvested, plow and seed to wheat with grass and clover. If the grass and clover make a good catch, let stand for hay one year, mowing once, and then top dress with farm-yard manure during the winter and plow down for corn. Field No. 2.—Sand vetch and German clover in the fall, followed by corn with cow-peas and pumpkins. Field No. 3.—Part in sand vetch, part in rape and turnip, and German clover in the fall, followed in the spring by cow-peas or cow-

peas and sorghum or corn, to be cut and cured for hay, and followed by vetch, German clover and rape for winter and spring pasture, and this crop to be followed by corn. The rotation prescribed for Field No. 1 to be followed on each of the other fields in due course. In this way the twenty-five acres will be kept at work constantly producing field crops of high nutritive and fertilizing value to be fed to the stock either upon part of the orchard and garden lot or in the barn, whilst at the same time each year will give a wheat and a corn crop for sale and for feed. All the manure made not required for the garden should be applied on the land going into corn. After a few years it will be found that, beyond a few hundred pounds of acid phosphate per acre each year to be applied to the land going into wheat, and a few tons of lime to be applied on the clover or pea crop before the wheat once in every 3 or 4 years, little bought fertilizer will be needed. Probably for a few years at first it will be necessary to apply 250 or 300 lbs. per acre of acid phosphate to the land before seeding cow-peas, but after the rotation is once thoroughly established and all the stock which such a system of cropping will enable to be carried on the place is being carried, the farm will be self-fertilizing. If any difficulty should be found in disposing of the butter, we would lessen the production and make beef, mutton and pork an item of production and sale. As subsidiary to this method of managing and working the bulk of the farm, we would make the raising of truck and garden crops and poultry of all kinds a factor, so that in addition to meeting all the needs of the home in these respects there would be a surplus for sale in the nearby market or to be shipped when in excess of local requirements to more distant markets as to the truck crops, or be canned, preserved or fed to stock at home. We would also grow a patch of artichokes for the hogs and rape and turnips for the sheep and cows These two latter crops to be raised on part of the land coming in vetches and clover. The adoption of such a system as we have suggested would, we believe, enable even a forty acre farm to be profitably conducted where trucking could not be made a feature of importance. The point to be aimed at is to secure intensive production of crops of high feeding and fertilizing value, not to be content with merely one crop per acre per year. With our long seasons and mild winters, the land should be kept always producing something either for feed or for fertility. Given reasonable facilities for reaching the railroads or the steamboats, distance from city markets offers no insuperable difficulty. We know of one producer of cream in this State who hauls eight miles to the depot and then ships by rail nearly 400 miles, and does so profitably. Several other producers of butter whom we know ship over 200 miles by rail or steamboat with profit. The point is to make the land produce to its maximum capacity, to feed this product to animals capable of making maximum yields, and in this way to keep down the cost of production.

LIVE STOCK RAISING IN THE SOUTH.

Editor Southern Planter:

No farm is complete without a number of cattle upon it. They second the economy of growing leguminous plants to keep the soil in fertility and can be raised at a trifling cost.

In a proper system of farming, early harvested crops should be followed by cow-peas or sorghum, and these should be fed and the cattle sold, rather than selling the hay. When these crops are removed, the land should still be employed in winter, growing crimson clover or winter vetch, that it be ready for the spring plantings. The only gap not fully filled up in this system is that for use as spring pasture. Upon a well regulated farm there must be green fodder as well as the cow-pea hay. To supply this there will need be an early planting of millet, sorghum or corn. In this way the stock can be kept in comparatively close quarters, the manure saved, and a good number of fat cattle be made for sale.

When the Southern farmers enter into the true spirit of intelligent, systematic farming—of putting humus into the soil by burying decaying animal and vegetable matters and deep plowing—there will be a grand success.

New York. S. S. Boyce.

WHEAT AFTER CORN.

Editor Southern Planter:

Many of our farmers are following a ruinous policy—sowing wheat after corn. This should never be done if it can be avoided. Some farmers are forced to do so on account of wild onions that will come on fallow land in the wheat and head up in the wheat. They come up also on the corn land, but do not head until the next year. The trouble is that, under the system of wheat after corn, the land is getting poorer all the time, and if that rotation is not stopped, in a few years more the land will hardly sprout peas. What is the profit in sowing wheat on land that only yields five or six bushels per acre on an average? Where can any profit come in? Unless the land has been well manured for corn, it should not go in wheat, but be left until the following spring and then sowed with peas, to be followed by wheat in the fall, and that, too, is a better way to set back the wild onions.

Again, it is a very hard matter, in these times of

scarce and poor labor, to get the corn off in time to sow wheat. We should begin to sow wheat about the 10th of October, and finish, if possible, in that month. I am sorry to see so much of the lands in our old State growing poorer every year. It is nothing but bad management. If our people would sow more peas it would be better. Peas pay better than corn or wheat. Sow a lot of peas in May; pick what you need of the first to ripen; then in September plow them under and sow wheat if you like; follow your wheat with clover in February; the next year cut your first crop of clover for hay and plow the second in for corn the following year. Such a system will keep the lands up and improve them. Our lands need humus and must have it, or they will fail to grow crops. All Tidewater Virginia lands need lime, and with lime they are easier to improve and will produce better crops.

COUNTRY.

FIGHTING THE HESSIAN FLY.

Throughout much of the State of Indiana the wheat crop is a disastrous failure. Thousands of farmers are asking, "Is it worth while to attempt to grow wheat?" This depends on whether the cause or causes of the failure are beyond the farmers' control. While the season had something to do with the poor wheat crop, the Hessian fly was largely responsible. The "fly" practically destroyed many fields of wheat last fall, long before the beginning of winter. Many localities exempt from the fly produced a fair crop. Intelligent observing farmers quite generally agree that the 'fly" is the chief cause of the failure. Can the farmers control this pest or must they "give up beaten" by an insect smaller than a mosquito?

While the individual farmer may do something to hold the fly in check, his efforts alone are practically futile when the fly is very prevalent. In this latitude there are two broods, each year, of the Hessian fly, which propagates rapidly and migrates with ease in the direction of the prevailing winds. It follows, therefore, that one farmer cannot, by good methods, barricade his farm against both fall and spring attacks of these insects which are produced in countless numbers by his negligent neighbor to the windward.

But can nothing be done? Is there no hope? Yes, there is hope, aye, victory! If the farmers will only unite! unite! unite! to combat this pest of the wheat field.

If the farmers will all employ the following measures they will outwit and largely destroy the fly, and, barring a hard winter, secure a fair crop of wheat:

1. Prepare the ground for wheat early and thoroughly.

2. Promptly destroy all volunteer wheat in the plowed fields.

3. Sow decoy strips of wheat, about one rod wide, around each field designed for wheat.

4. Carefully turn under these strips, using jointer and roll to bury all the larvæ and "flaxseed" of the fly just before sowing the main crop.

5. Begin seeding as soon as the fly has ceased to be active, and drill in with the wheat some good complete fertilizer, unless the land is already sufficiently fertile.

These measures, if adopted by all wheat growers, would (1) destroy myriads of the fly; (2) avoid almost wholly the fall attack of the insect; (3) by greatly reducing the number of the pests, prevent a serious attack in spring.

The times of sowing the border and the main crop would vary with the latitude. They are approximately as follows: North third of the State, border, September 1st, crop, September 20th to 30th; central third, border, September 10th, crop, October 1st to 10th; south third, border, September 20th, crop, October 20th to 30th.

If you have no faith in the above measures, don't sow any wheat—sow rye instead. Then you will not hinder your neighbor who is willing to "try the remedy."

The writer desires to hear from wheat growers who will undertake to enlist their neighbors in a combined attack on the despised "foreigners," the Hessian fly.
—*Professor Latta, Indiana Experiment Station.*

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Best Varieties of Apples to Plant in Middle Virginia.

I am intending this fall to start a young orchard in Spotsylvania county, near Fredericksburg. I intend setting out 1,000 trees or over, all winter apples, to be marketed for profit. Will you be kind enough (in the August *Planter*) to recommend the four varieties which you deem best in the order of their respective merit. Also please state the difference between the Winesap (original) and the Stayman Winesap, and which will be best for this latitude.

Spotsylvania Co., Va. C. J. HILLYER.

Your letter came too late for the August *Planter*, but as there is plenty of time to consider the planting still I answer here. I think it is very doubtful that either of the Winesaps will prove to be very good keepers grown so low down as Fredericksburg. But of that you should know more than I do. Stayman's Winesap is a very showy Winesap, similar in color and markings to the old. But whether it is really an improvement can only be told when the trees get into heavy bearing. Young trees of the old Winesap give apples of far larger size and finer appearance than old trees that are allowed to bear heavily. So far all that I have seen were from young trees. With proper care and some thinning at times after the trees attain age, together with the keeping up of the fertility of the soil, the old Winesap is hard to beat. Plant some of the Stayman, but put your dependence mainly on the old till the new is proved. Never plant an entire

orchard of any fruit or a single variety. We are learning more and more of the repugnance of many fruits to setting their own blossoms. This is more marked in some fruits than in others, but we believe there is the same condition among plants in general. You should plant some of the York Imperial, and it would be well to take the advice of Richmond nurserymen as to varieties, since you are in a similar climate. In any event, get your trees as near home as you can find a reliable nursery.

W. F. MASSEY.

Truck Crops for Alabama.

What would be the best vegetables to raise for fall market?

I am a recent subscriber to the *Planter*, and only have two numbers—May and June—and would like very much to get your plan in detail for curing pea vine hay. I have in the past cured some very nice hay, but do not like my plan much if I can find an easier or better way. I am curing as recommended by Redding in *The Constitution* a year or two ago.

I am an amateur in market gardening and trucking, and any information you could give along this line would be gladly received.

What would be a good book for beginners in market gardening? J. D. PARKMAN.

I send to you a bulletin, which gives my method of curing pea-vine hay, which has been given heretofore in the *Southern Planter*. The best book you can get will be Oemler's "Truck Farming in the South," published by Orange Judd Co., 52 Lafayette Place, New York. As to what vegetables are best to grow for the fall market, that will depend on what your market is. There is little use to grow anything for northern shipment in the fall, and you give me no information in regard to your location, and I cannot find your post-office in any P. O. Guide I have. In the mountain section you may grow late cabbages for the home market, and of course in the fall is the time to prepare for the spring market of early cabbages, and the winter crops of lettuce and spinach. Get Dr. Oemler's book and it will help you.

W. F. MASSEY.

Disease in Tomatoes.

Can you diagnose and prescribe for the following affection of tomatoes: For two years I have planted the "Stone" seed, from W. A. Burpee & Co. In 1899, set out in rather stiff and moist soil, very dark and enriched the year before with very heavy dressing of stable manure, which had become thoroughly rotten and incorporated with soil; when plants had taken good hold top-dressed with "Acme" fertilizer; growth was very vigorous, and vines attained a height of four to five feet, and although set four by four feet they met so as to render passage between them difficult; vines flowered and fruited perfectly, but fruit was almost, without exception, worthless, being affected with a kind of rot which attacked each tomato at the bud or bottom, gradually eating its way into the fruit. Next, the vines commenced to wilt *from the top downward*, sometimes one branch at a time, and sometimes the whole plant—the blight or rot gradually killing the whole plant. Upon examination, I found that the rot was caused by a hollow stalk, which commenced apparently at or just below the surface of the soil; in some plants, when the branches were reached, the rot extended up each as reached, but sometimes only one or two branches would be affected, the others dying afterwards. This season an entirely different location was chosen, higher and drier. Poultry manure mixed with wood's mold applied in hills, and fertilizer (Acme) used as before for top dressing. Again, the rot or blight; cause ascertained by experiment, not too much moisture, not too little, not grubs or worms as far as can see with naked eye.

Reply through *Southern Planter*, and oblige,
Columbus Co., N. C. D. S. COWAN, JR.

This letter has been mislaid and has just now turned up. You have both the "rot" and the Southern blight apparently. The rot can be controlled by regular spraying with Bordeaux mixture from the start, not waiting till the rot has developed, as then it is too late. For the blight we have no preventive that can be relied upon. I have found that a winter application of lime to the land to be planted in tomatoes has a good effect in preventing it, but tomatoes should never be grown on land where potatoes, egg plants or peppers have been grown the year before. Prevention is the only way to get around these troubles, for no treatment will avail when the fungus has gotten hold. The blight being caused by bacteria inside the plant, we cannot get at it by spraying.

W. F. MASSEY.

Fertilizing for Wheat and Grass.

I have a large crop of wheat to put in this fall, about 150 acres, and the question of fertilizer is the thing I am driving at. I am situated in Piedmont Virginia, and our soil as you know is chocolate loam, with red clay subsoil, and red mountain ground (which is inclined to spew in winter), also with red clay subsoil. Most of my neighbors and myself have been using S. C. rock; but for last few years hay has not been doing much, although in some instances we used $22.00 goods, guaranteed to contain 1000 lbs. mixed bone and tankage to ton, with no better results than the S. C. rock. Although land was in good condition, and applied 400 lbs. per acre, grass has not been what it should be. An idea struck me a short while ago by which I hope to secure better results, and at the same time save money, which is this, to make a mixture of

1 part	cottonseed meal	$21 00	ton
1 "	S. C. Rock, 14 per ct. goods	12 00	"
2 "	mill-feed, $12.00	24 00	
2 "	lump lime (slaked after gotten) , $5 00	10 00	
6		$67 00	

or $11.16 per ton.

The mill-feed costs me little, and is good, rich, clean stuff, and if one goes on theory of like begetting like, we will certainly have a good part of wheat under wheat. I want it for that and grass. These are the ingredients I want to use and would like your views on subject; also if this is not proper proportion, to give your idea as to mixing and about quantity to be used per acre. "L."

Orange Co., Va.

We are pretty well acquainted with the character of the land in your section, and do not believe that better naturally can be found anywhere in the State. It is also true that it does not produce as good crops of wheat, grass and clover as we think it might do, and this whether fertilized with bone, acid phosphate or an ammoniated fertilizer. We believe that what it needs more than anything else is lime. This would make the potash and phosphoric acid in the soil available, and if then the wheat was helped to make a good start with a dressing of nitrate of soda in the spring, we believe you would see better crops. Possibly some bone and acid phosphate mixed should also be applied at seeding to be immediately available. If we were farming your lands, we would apply 25 bushels (1 ton) of lime to the acre as soon as we had plowed the land for wheat. This we would harrow in until seeding time. We would plow as early as possible a strong, deep furrow, then apply the lime and harrow, and harrow at least every ten days until we seeded. If light or puffy, or if cloddy, we would roll before each harrowing. At seeding we would apply 400 lbs. of acid phosphate and bone meal to the acre (200 lbs. of each), and would seed clover and grass at the same time as the wheat. And now having given you our idea, let us turn to your suggestion of a fertilizer and give you our reason for not advising it. In the first place to use cottonseed meal and mill-feed simply as a fertilizer is unsound economy, even if they cost nothing or practically nothing. These articles contain the most valuable feeding nutrient for live stock, and to simply use them as fertilizers is to waste this. If fed to stock the manure made by the stock will still contain from 80 to 90 per cent. of all the fertilizing ingredients which the meal and feed contained before being fed. Used in this way you get the fertilizing value of the seed and meal for practically nothing, as the beef made in feeding them more than pays for the food. In the last issue of the *Planter* you will see what a 30 bushel crop of wheat takes from the soil in the way of phosphoric acid, potash and nitrogen, viz.: Phos. acid, 22¾ lbs.; potash, 28 lbs.; nitrogen, 45 lbs. Now let us see what your mixture would supply, say applied at the rate of 400 lbs. to the acre—100 lbs. cottonseed meal, 100 lbs. S. C. rock (14 per cent.), 200 lbs. mill-feed.

	Nitrogen.	*Phos. Acid.*	*Potash.*
Cottonseed meal, per 100 lbs..	6 lbs.	2½ lbs.	1½ lbs.
Mill-feed, per 200 lbs.	3 lbs.	1 lb.	½ lb.
Acid phosphate, per 100 lbs...		7½ lbs.	
	9 lbs.	10½ lbs.	2 lbs.

The lime directly adds nothing in the way of plant food. You would thus have about one fifth of the nitrogen, one half of the phosphoric acid, and one fourteenth of the potash called for by a 30 bushel crop, even if all were capable of being utilized by the crop; but as no crop is capable of utilizing more than from 50 to 75 per cent. of the applied plant food, you would really have only from one half to three fourths of these quantities supplied available; that is to say you would have one tenth of the nitrogen, one fourth of the phosphoric acid, and one twenty-eighth of the potash or a little more. From this you can see how heavily you would have to apply the mixture to really supply the plant food needed by a 30 bushel crop, and what a cost per acre it would amount to. At the same time you would be wasting food which is worth nearly all it costs *as food*, and the fertilizing value is given in because it nearly all remains in the manure after the animal has taken out the feed value in the meal.

We believe that with the use of the lime we have advised (25 bushels per acre), and the acid phosphate and bone (200 lbs. each per acre), you would get good results at a reasonable cost, say—

25 bus. lime per acre	$5 00
200 lbs. bone, at $30.00 per ton.....	3 00
200 lbs. acid phosphate, $12.00 per ton,	1 20
	$9 20

If in the spring you applied 100 pounds to the acre of nitrate of soda just when the crop started growing, we are satisfied that it would pay. This would cost, say an additional $2.00, making the total fertilizer cost $11.20 per acre. With such a fertilization you would, we believe, get both wheat, clover and grass. You would get the same result by feeding the meal to stock and top dressing the wheat with the manure from them, and you would get beef besides.—Ed.

Seeding Winter Oats.

In the last four or five years my oats have been badly "winter killed." Oats follow corn. At the last working, peas are broadcasted in the corn and worked in with the Planet Jr. The first week in August blades are stripped, and first week in October the ears are broken in. Immediately I start the sulky plow with three good mules, and plow under the whole growth. It is hard work, for the roots are green and the growth of stalks, vines and grass heavy. Where the grass is very heavy, as in low, damp places, much of it is not well covered; the furrow slice turns back,

and many stalks show on the ground. The oats are sown broadcast over the rough ground, and harrowed in with an Evans lever harrow and three mules. I have thought perhaps the oats are not deep enough in the ground, and the deep plowing left the land so loose the cold penetrated below the roots and killed them. Do you think this view correct? Are oats harrowed in on plowed ground more liable to be killed than when plowed in first and harrowed afterwards?

I am inclined to this opinion from last year's experience. I mowed five acres of the cornfield with a McCormick mower, and raked up and hauled off stalks, vines and grass, and plowed up the rest of the field with the sulky as usual; the oats on the five acres mowed and the stuff hauled off were plowed under with single horse plows, thus lying on *hard ground* and covered about three or four inches. On the rest of the field the oats were sown on the rough plowed ground, and both fields well harrowed as usual. Where the oats were plowed in, I do not think I lost 10 per cent., but on the rest of the field, where the land had been first plowed and the oats harrowed in, I lost over 90 per cent., for I only got ten two-horse wagon loads of oats from eighteen acres of land. I cannot mow the whole field, and cannot work single plows unless I can get off the heavy growth, and was thinking of trying the following plan this fall: Broadcast the oats over the field, and plow in with the sulky, running only deep enough to cover in the growth on the land.

1st. Do you think the fermentation of so much green matter will injure the germ of the oats?

2d. Do you think the oats will be able to make their way through the sod?

It is impossible to tear up and break up the sod turned under by the plow, and the harrowing only pulverizes and levels the surface.

On pea or oat stubble, or where there is not too heavy a growth so as to choke the plow, the single horse plow works in peas or oats very nicely, but the ground must be clean

As we cannot get "hands" to pick peas in this neighborhood after cotton opens, I cannot get those grown in the cornfield picked, and my aim and endeavor is to get all the vegetable matter on the land turned under as soon as possible so as to get my oats in as early as I can that they may root well before cold, but I have not escaped winter-killing by my present methods.

Richland Co., S. C. SUBSCRIBER.

1. We do not think that the suggested plan would be successful. The fermentation of so much green matter in your hot soil would undoubtedly be injurious to the growth of the oats.

2. We doubt very much whether the oats which, by plowing down, would be thrown into the bottom of the furrows, would be able to get through the sod even if uninjured by the decaying vegetable matter.

The success made last year in sowing upon the land from which the growth of peas, &c., had been removed, and then plowing the seed down, indicates clearly the way to overcome the winter-killing. The oats require to be covered much more deeply than by merely harrowing them in on the tough sod. If they could be put in two or three inches deep with a disc drill on this inverted sod probably they might succeed. We have always strongly advised plowing down winter oats, but as you well remark, it is a condition precedent to success in so doing that the land shall not be covered with a heavy growth of vegetation or with trash. Oats are much more liable to be winter-killed if sown broadcast and then harrowed in than if sown and plowed down and then harrowed. A large farmer remarked to us a few days ago that the disc drill was the best drill ever introduced, as it enabled farmers to seed on land having much vegetation or trash on it, and yet be certain that the seed was well covered. He said such a drill would quickly pay for itself in the saving of destruction of crops by winter-killing and drouth.—ED.

Fleas.

Will you please tell me through your paper how to get rid of fleas under houses. CORBETT, JR.

North Carolina.

We presume that the fleas come from allowing chickens and stock to gather under the houses. Clean out all dirt and trash from under the houses, and then lime wash the walls and boards with good, freshly mixed lime wash, into which put either a little kerosene or crude carbolic acid. Then board up closely all the openings giving access to the fowls and animals, and keep the space under the houses clear of all animals and trash, and the fleas will soon be got rid of.—ED.

Soil for Raspberries.

I have a lot of raspberries one year old; had a fair crop this year, but don't think the land suits them. They are in a bottom and very stiff land. Please inform me what is the best time to move them and how to prepare the land for them. The place I want to put them is a grey soil not very stiff. It is an old asparagus bed. The land is in good order.

W. A. SMITH.

Raspberries generally do better in rather a stiff and moist clay soil, and you may make a mistake to move them if not compelled to do so. Better get plants grown from root cuttings than to move the old plants. Or let the plants stay where they are and cut off some roots from them, and make cuttings about two inches long and bury them till spring. Then plant them in a shallow furrow and grow new plants that will be ready to transplant in the fall to any place you may wish them. I assume that they are red raspberries. Black caps are better grown from matured tips layered along the rows. If the plants made a good crop where they are, I would not move them, as you will thereby lose a season, for it will be necessary to cut them down to move them. W. F. MASSEY.

Grain to Seed with Vetch—Grain for Hay—Fertilizer for Cow-peas and Vetch.

I have some "old field" land, recently purchased, which I wish to improve. The stumps of twelve years growth were dug out last fall, and the land plowed. It is now in Black peas, which will be cut for hay, if of sufficient growth, and the stubble seeded to sand vetch with some grain as a support. Next spring the vetch will be cut for hay, if good enough, and the land seeded in peas, soy beans or velvet beans, to be left on the land for turning under for corn. The corn to be followed by winter oats for hay; the oat stubble to be seeded to cow-peas, and followed by vetch or Crimson clover, and the latter by velvet beans or peas, in preparation for corn again.

1. What is best grain to seed with vetch? 2. What grain will make hay nearest a balanced ration for horses that will be idle three-fourths of the time?—oats, wheat, rye or barley? The vetch and cow peas are intended for cows. Where, and what kind of fertilizers should be used? "S."

Nothumberland Co., Va.

1. The best grain to sow as a support to the vetch will be rye on land of that quality. 2. Oats, doubtless, though a bald headed barley is not bad. Bearded barley is bad food for horses. For vetch or peas acid phosphate and potash are all that you need—200 pounds of acid phosphate and 25 pounds of muriate of potash. Velvet beans will give you a heavy mass if planted in late April, but will hardly ripen seeds. The vetch, if allowed to seed, will re-seed the land annually and come again in the fall. It is better farm economy to feed all the forage crops you make and return the manure, rather than to bury the crop in the soil. W. F. MASSEY.

Crop Rotation in Eastern Virginia.

Being a reader of the *Southern Planter*, and seeing so much valuable advice given by you to farmers, I thought I would ask your opinion on a rotation of crops I propose to try. I have a small place and don't propose to do any grazing. Will farm in a four-field rotation, taking first field for corn. Wheat sowed on corn land. Wheat stubble fallowed as soon as possible after wheat comes off and sowed in cow-peas. Cow-peas cut for hay, and pea stubble put back in wheat; timothy seed to be sown with this sowing in wheat. In case I did not get a stand of timothy, I should plow up wheat stubble and sow timothy seed in August alone. After cutting first crop of timothy hay, I would plow the ground and sow in cow-peas to be left on the ground, in which I would sow 1½ bushels of rye to the acre with disc drill, to be turned under in spring for corn. This gives on the four fields two fields for wheat, one for corn, one for hay with cow-peas on first or corn land, wheat fallow and cow-peas on timothy fallow, with rye later for corn.

If you consider this rotation as practicable, would like to know what kind of cow-pea I should use as I see you speak of different kinds. Land is level sandy loam with clay subsoil. W. H. DAVIS.

Essex Co., Va.

If the development of the land for the production of the wheat crop is what you are aiming at, I can see no good reason for sowing the timothy, which in your climate is at best an uncertain crop, and not equal to a leguminous crop as feed. Clover and pea hay with the corn fodder will make a far better ration for animals of any kind than timothy, which for cows is about as poor feed as you can grow. For a four year rotation in your climate I would prefer the following: Corn, followed by wheat with 300 lbs. of acid phosphate per acre; cow-peas mown for hay and followed by wheat; Red clover top-dressed with lime at rate of twenty bushels per acre the spring before mowing. Two crops of clover mown and all the farm manure gotten out on it during the winter, and in spring plowed for corn again. Use the lime on the clover only in each alternate round of the rotation. By feeding the pea and clover hay with the corn fodder you will soon be able to make manure enough to cover one field every spring, and the only place you will need fertilizer will be on the corn ground wheat, where you will need phosphoric acid. Whether it will be better to add some potash to it or not will depend on the character of your soil, but from what I know of your section I believe it will be an advantage both to the wheat and the following crop of peas to add 50 lbs. per acre of muriate of potash to the wheat fertilizer. There are doubtless strong clay soils like those in some parts of Orange and Culpeper, where it is possible to bring the land into a high state of cultivation and productivity by thorough tillage and no application of commercial fertilizers at all. But whether even there such a course would be the most profitable is questionable. A liberal use of the mineral fertilizers on the crop preceding the peas will pay in the enhanced growth of the peas alone to say nothing of the wheat crop. If you feed the forage, you should have some standing pasture, unless you expect to depend on buying beef cattle to feed in winter. If such is your object, you should put the entire corn crop into the silo, and thus greatly increase your feeding capacity, and turn the corn into a manufactured product, get more for it and get far more manure. W. F. MASSEY.

Sawdust as a Fertilizer—Colorado Potato Beetles.

Please answer in next *Southern Planter* the following. Several months ago I wrote you regarding pine sawdust as a fertilizer and thank you for your reply.

Is there no way that I can utilize the immense pile of sawdust so handy to me? Will it pay to convert it into ashes? The ashes will leach a good deal, as I can haul only after it is burnt out. Is it common for the Colorado beetle to burrow in the soil and attack the tubers? They undoubtedly did so in my potatoes. In digging, thousands were turned up and many found partly buried in tubers and feeding on them.

Richland Co., S. C. JAS. SHOOLBRED.

If you can in any economical way reduce the pile of sawdust to ashes, it may of course pay you to use them. But in proportion to bulk there is little po'ash in pine sawdust, though there may be a fair percentage in a ton of it. The Colorado beetles will not prey on your tubers. They eat little as mature insects, and the damage is done by the larval form. They go into the ground to pupate or go through their dormant stage, and emerge when perfect insects for the purpose of laying eggs. W. F. MASSEY.

Removing Fruit Trees.

I have an orchard of one hundred trees—seventy five peaches and twenty-five apples—"nursery stock," put out in the spring of 1897, that I want to move. You will please answer through the columns of the *Southern Planter* can I successfully move, and at what time of the season. Also instructions as to trimming and care of them. THOS. G. GIBSON.

Richmond Co., N. C.

The apple trees may be successfully moved if care fully taken up and pruned; but I believe that you will get better trees by planting young ones from the nursery. The peach trees are worthless to move at that age. Peaches get into bearing so quickly that it is not worth while to try to move old trees. The young one year trees will give you fruit and more of it in a couple of years, than the old trees will if moved. To move the apples they should be headed back near the crotch or about two feet from the fork, and the roots trimmed carefully so as to take off all bruised roots. W. F. MASSEY.

Grain as an Exhauster of the Soil—Hairy Vetch—Silage.

1. Will oats, cut in the milk state or when beginning to turn, exhaust land more than when fully ripe? We have had quite a discussion over this, and would like to have your opinion.

2. Is hairy vetch a good plant for forage in middle Arkansas?

3. Will silage keep as well and be as good feed in middle Arkansas as in the Northern States?

Will you kindly answer this in September number?

B. E. WATSON.

There are some indications that potash to some extent returns to the soil as the grain ripens, but this is by no means certain, and I would not hesitate to say that there will hardly be an appreciable difference in the effect on the soil of oats cut in the milk and oats allowed to ripen. There is mainly a parting with the water in the plant.

Hairy vetch will do finely anywhere in the South, and, if allowed to seed, will re-seed the land annually and come again in the fall. It is a valuable winter growing forage plant. I intend to make the experiment of sowing it with clover this fall, hoping to have the red clover left after the vetch is cut. It may be a failure, but it is worth the trying.

W. F. MASSEY.

3. [Prof. Massey having inadvertently overlooked the last query, we reply to it, Yes.—ED.]

Grasses for Name—Strawberries.

1. Please tell me the correct names of the enclosed grasses, which I have numbered 1, 2, 3, 4.

2. What variety of strawberry would you advise for this locality, near Lynchburg, Va., and is red or grey land best suited for strawberries?

3. Do commercial fertilizers keep potatoes from decaying? I used fertilizers on mine pretty heavily and in digging I noticed that the seed pieces are as sound as when they were planted.

Amherst Co, Va. J. W. TYLER.

No. 1 is probably *Panicum clandestinum*, an annual grass of value in the upper country. I judge this from the appearance of the foliage, as you sent no flower-head. No. 2 is not a grass at all, but a sedge, one of the genus *Schleria*, or Nut Sedges. No. 3 I cannot identify from the imperfect specimen sent. It is hard to identify grasses unless we have the entire plant with flower head in bloom. No. 4 is *Paspalum dilatatum*, a grass common in wet margins of streams. What its agricultural value may be I cannot say. It makes large tufts, and of late has been attracting some attention as a meadow grass. But as I have never tried it, I cannot say what its value may be.

Of strawberries, the number is now so large that it is hard to recommend a single variety. For very early use I do not know any better than the Hoffman; for general crop, the Brandywine and Clyde are excellent; and for late use the Gandy is about the best. Grey soil of a rather moist character is better for strawberries than the red land. I grew them largely on creek bottom lands in Albemarle, and although they told me that the frost there would prevent fruiting, I never had any trouble in getting enormous crops on the Meechum river bottoms right under the Ragged mountains.

I hardly think that it was the fertilizers that preserved the cut potatoes. They frequently remain sound after growing a crop.

W. F. MASSEY.

ROPY MILK.

A writer in *Hoard's Dairyman*, referring to milk that would thicken when perfectly sweet, could discover for some time no cause for it, as the parties handling the milk were careful and cleanly about cans, stable and milking, but at last found that the cows waded in swamp muck to get to their water, and that the trouble at once entirely disappeared when they were removed to another pasture—indicating that certain bacteria from the swamp muck caused the trouble.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

This month is usually a busy one with the trucker and in the garden. The spring and early summer-sown crops are maturing fast and must be either marketed or stored for winter use, whilst the preparation of the land and the seeding of the fall, winter and early spring crops also calls for attention.

In harvesting and shipping the crops, see that they are handled with care, and that nothing but sound, perfect stock is sent out. Keep out the culls and imperfect fruits and tubers and let them be used at once either in the house or by the stock. Ship in clean, well-ventilated packages. Roots and fruits to be stored for winter use should be gathered dry, be carefully cooled off, and then be placed in dry, cool airy places until they have passed through the sweat which naturally follows gathering. Apples and pears are best kept in dry, cool cellars, stored in bins containing not more than two or three bushels, and well ventilated. Onions are best stored in an airy, dry shed on slatted shelves. Roots are best stored in cellars or pits, but should not be put away until cool weather has set in. Meanwhile, they are best either left in the ground or stored in quantities of a few bushels in a heap, covered with straw and boards to keep out the rain.

Land should be got ready for kale, spinach and winter cabbage. Let it be well prepared, and for the cabbage especially, be made rich with farm-yard manure and a fertilizer having 7 or 8 per cent. of potash. The land for the kale and spinach crops need not be made so rich, but still should be in good condition. Kale and spinach should be sown in drills two feet apart where the crop is intended to grow to maturity. Cabbage plants should be raised in beds, and in November be set out in the fields. The seed-bed should not be made over rich, or the plant may suffer too severe a check when set out. The object is to raise short-stemmed, stout-grown plants. The Early Jersey Wakefield is the best cabbage for first crop; the Flat Dutch for second early. Spinach sown at once will come in for fall cutting. Sown a month or six weeks later will make a spring crop.

Broccoli plants and cabbage plants raised in beds sown a month ago should be ready for transplanting. These should be set out in good, rich well-prepared land, and will make heads to cut in November and December.

Onion sets of the potato variety should be set out in rich land in rows fifteen inches apart and the sets six inches apart in the rows. The sets should be covered with about an inch of soil. These make the first green onions for the spring market and bulbs for early shipping to Northern markets.

Lettuce seed should be sown in beds to raise plants for setting out in the spring in the open ground and for forcing in the frames during winter.

Turnips should be sown for roots and for salad.

Radishes may be sown for pulling in the fall.

Snaps and English peas planted early this month will, if the fall is a fine open one, make crops, but this is a speculative matter, and ought not to be gone into largely.

Strawberries should be planted. In this issue will be found an article dealing with this subject.

As the crops are gathered in the orchard, vineyard and garden, clean up all trash and weeds and burn at once so as to destroy all fungous spores and the eggs and pupa of insects. In this way much can be done to prevent damage next season.

Land not wanted for truck crops or to be set out in fruit, should be plowed and be seeded with crimson (German) clover or sand vetch. This will prevent loss of fertility and make vegetable matter to be turned down.

PEAR BLIGHT.

Mr. B. T. Galloway, Chief of the Division of Vegetable Physiology and Pathology, has furnished the Agricultural Department *Crop Reporter* with the following article on this subject:

Pear blight has been unusually abundant the present season, and, owing to the great damage it has done to orchard fruits, a few words in regard to its cause and prevention may not be out of place. It may be defined as a contagious bacterial disease of the pear and allied fruit trees. It attacks and rapidly kills the blossoms, young fruits and new twig growth, and runs down in the living bark to the larger limbs and thence to the trunk. While the bacteria themselves rarely kill the leaves, at most only occasionally attacking the stems and midribs of the youngest ones, all the foliage on the blighted branches must, of course, eventually die. The leaves usually succumb in from one to two weeks after the branch on which they grow

is killed, but remain attached and are the most striking and prominent feature of the disease.

The most important parts of the tree killed by the blight are the inner bark and cambium layer of the limbs and trunk. Of course, when the bark of a limb is killed the whole limb soon dies, but where the limb is simply girdled by the disease it may send out leaves again the next season and then die. All parts of the tree below the point reached by the blight are healthy, no more injury resulting to the unaffected parts of the tree than if the blighted parts had been killed by fire or girdling.

The blight is caused by a very minute microbe of the class Bacteria. This microbe was discovered by Prof. T. J. Burrill in 1879, and is known to science as *Bacillus amylovorus*. The following are the principal proofs that it causes the disease: (1) The microbes are found in immense numbers in freshly blighted twigs; (2) they can be taken from an affected tree and cultivated in pure cultures, and in this way can be kept for months at a time; (3) by inoculating a suitable healthy tree with these cultures the disease is produced; (4) in a tree so inoculated the microbes are again found in abundance.

The treatment for the disease may be classed under two general heads: (1) Methods which aim to put the tree in a condition to resist blight or to render it less liable to the disease, and (2) methods for exterminating the microbe itself, which is of first importance, for, if carried out fully, there can be no blight. The methods under the first head must, unfortunately, be directed more or less to checking the growth of the tree, and, therefore, are undesirable except in cases where it is thought that the blight will eventually get beyond control in the orchard. Under the head of cultural methods which favor or hinder pear blight, as the case may be, the most important are pruning, fertilizing, cultivation and irrigation, but details in regard to these need not be given here, as the main reliance must be placed in the only really satisfactory method of controlling the disease—that is, the extermination of the microbes which cause it. Every particle of blight should be cut out and burned while the trees are dormant, not a single active case being allowed to survive the winter in the orchard or within a half mile or so from it. Every tree of the pome family, including the apple, pear, quince, Siberian crab apple, wild crab apple, the mountain ash, service berry, and all the species of Cratægus, or hawthorns, should be examined for this purpose, the blight being the same in all. The orchardist should not stop short of absolute destruction of every case, for a few overlooked may go a long way toward undoing all his work. Cutting out the blight may be done at any time in the winter or spring up to the period when growth begins. The best time, however, is undoubtedly in the fall, when the foliage is still on the trees and the contrast between that on the blighted and that on the healthy limbs is so great that it is an easy matter to find all the blight. It is important to cut out blight whenever it is found, even in the growing season. At that time of year, however, it cannot be hoped to make much headway against the disease, as new cases constantly occur which are not sufficiently developed to be seen when the cutting is done. In orchards where there are only a few trees and the owner has sufficient time to go over them daily, he will be able to save some which would otherwise be lost. However, when the trees stop forming new wood, the campaign should begin in earnest.

Of course, the greater part of the blight can be taken out the first time the trees are gone over. If this be in midsummer, the trees should all be again carefully inspected in the autumn, just before the leaves shed, so as to get every case that can be seen at that time. After this, a careful watch should be kept on the trees, and at least one more careful inspection given in spring before the blossoms open. It would, doubtless, be well to look the trees over several times during the winter to be certain that the blight is completely exterminated. In order to do the inspecting thoroughly, it is necessary to go from tree to tree down the row, or, in the case of large trees, to walk up on one side of the row and down the other, as in simply walking through the orchard it is impossible to be certain that every case of blight has been cut out.

The above line of treatment will be even more efficacious in keeping unaffected orchards free from the blight. A careful inspection of all pomaceous trees should be made two or three times during the summer, and a sharp lookout kept for the first appearance of the blight. It usually takes two or three years for the disease in an orchard to develop into a serious epidemic, but the early removal of the first cases will prevent this and save a great deal of labor later and many valuable trees.

In doing this work, it must be remembered that success can only be attained by the most careful and rigid attention to details. Watch and study the trees, and there is no question that the time thus spent will be amply repaid.

WHEN TO PLANT STRAWBERRIES, AND HOW.

Editor Southern Planter:

In growing strawberries a great deal depends on beginning right—more than with almost any other crop.

The strawberry plant is exceedingly intolerant of heat and drought. Its nature causes it to love moisture and coolness, or even coldness in preference to its opposite. If set in drought or heat, or if the setting is closely followed by drought and heat, not only a bad stand is likely to result, but the plants that live never do quite as well as those that are set under favorable conditions and grow off quickly.

The way to avoid a set back of this kind is to select the right season to plant. Generally speaking, this season is the cool season. At that time the sun is weak. Plants grow off then without wilting.

This season for planting, which I have broadly designated as the cool or moist season, extends from about September 15th to about April 15th. At the far North it might be necessary to plant later in spring than April 15th. But throughout the whole United States, with this small exception, planting can be done within the period designated. South of the latitude of Washington, D. C., planting can be safely done on any day within that period that the weather will permit; that is, when the ground is not actually frozen. We do nearly all of our planting here in North Carolina in late October, in November, December, January, February or March. We could plant a little earlier

in fall and later in spring, but during these months the strawberry plant is so easy to live that we never fail to get a good stand. In fact, though we annually plant from 100 to 200 acres in strawberries, we rarely find it necessary to do any replanting at all.

Nor do we have to rush the work or slight any part of it. The land intended for strawberries we plant in cow peas the previous summer. These peas are sown in drills and given two plowings, no hoe work being necessary. As soon as the pea vines mature they are turned under. They can be cut and dried for forage without much loss to the soil, as it is the roots in which the nitrogen, collected by the plant from the atmosphere, is stored. The turning under is done early in September. By the middle of October the vines have rotted, or at least, got tender enough to allow the thorough preparation of the soil.

We then replow the land, run rows off three feet apart, sow in the drill 500 pounds cotton-seed meal per acre and throw up a light "list" or bed on this. This list is knocked off very low and the plants set 15 to 20 inches apart in the row, as the soil may be more or less fertile, and the variety planted a more or less rampant grower. The other fertilizers needed—sulphate of potash and acid phosphate—are both applied as top dressings later on. Directions for these applications will be given in due time.

Of course thousands of acres of strawberries are annually grown with success which are not preceded by a cow-pea crop. Here I simply state the ideal condition which should be approached as near as practicable. Strawberries can be successfully grown to follow cotton, tobacco, potatoes and any trucking crop. They can even be grown after corn, though more fertilizer will be needed, as corn is a great exhauster of fertility.

We very often have severe freezes to interrupt our winter planting, but the cold does no harm whatever to the plants set, the strawberry plant being perfectly hardy except in the far North, where the thermometer drops considerably below zero. North of Mason and Dixon's line it is better not to plant from November 15th to March 1st, unless the newly set plants can be at once covered with straw or litter. If this is done, planting may be done anywhere unless the ground is actually frozen.

Kittrell, N. C. O. W. BLACKNALL.

AMERICAN FRUIT AT THE PARIS EXPOSITION.

A Virginia Grower Successful.

Editor Southern Planter:

I take pleasure in enclosing herewith a list of awards to exhibitors from the United States at the Paris Exposition in the temporary competition in horticulture held July 18th.

Shipments of the crop of the present year are now being forwarded at regular intervals for future competitions. The competitions yet to be held occur on the following dates: September 12th, September 26th, October 10th, and October 24th. Exhibits destined for any of these competitions must leave New York by steamer two weeks in advance of the date mentioned. Very truly,

WM. A. TAYLOR, *Acting Pomologist.*

Awards to United States Exhibitors in Group VIII—Horticulture—at Paris Exposition.

Temporary competition, July 18, 1900.

Class 45—Fruits and Fruit Trees.

First Prizes—Collections of Apples, Crop of 1899.

Division of Pomology, U. S. Department of Agriculture, General Collection.

Illinois State Horticultural Society.

Missouri State Horticultural Society.

New York State Commission.

H. A. Aldrich—Neoga, Illinois.

W. A. Young—Butler, Illinois.

Collection of Citrous Fruits.

California State Commission.

Second Prizes—Collections of Apples, Crop of 1899.

Connecticut Pomological Society.

Nebraska State Horticultural Society.

North Carolina Department of Agriculture.

Third Prizes—Collections of Apples, Crop of 1899.

James Dickie—Massie's Mills, Va.

J. O. Parker, Lakin, Kansas.

I. B. Perrine, Blue Lakes, Idaho.

SKILL MORE ESSENTIAL THAN SOIL.

In an extensive study of the matter of forcing house soils, Prof. G. H. Powell, of the Delaware Experiment Station, has found that skill has more to do with the success of growing winter vegetables than has the soil. A number of experienced gardeners gave him their opinion in regard to it. One said: "We don't consider the soil much of a factor in vegetable growing. All one wants to know is just what his plants need, and then cater to their wants. We have used a soil and grown a crop of cucumbers in it, renewed the same, added some manure, put the same in a tomato house, grew a crop, then mixed the soil with more manure, and grew a crop of mushrooms." Another one said that heating, watering and ventilating are of much more importance than soil.

Each vegetable needs a definite soil, but a skillful gardener can grow various crops on any good soil with plenty of sunshine, which is the most important element. Still, there is a choice in soils, and in general a rather sandy loam is preferred to a stiff or clayey soil, for the reason that it quickly drains off excessive moisture when careless watering occurs, and it is difficult to avoid this. A Washington grower considered the skilled gardener more important than the soil, and used practically the same soil for all crops. He says: "While other growers, using the same soil as myself, but having had only small experience, have lost their lettuce crop by rot, in our case, with nearly 60,000 plants, we have not lost any, have no rotten leaves, and received from 10 to 20 cents per dozen more than they did. We grew lettuce, cucumbers, radishes, egg plant and cauliflower."

Mention the *Planter* to your friends.

Live Stock and Dairy.

THE SHORTHORN SALE AT WELDON, PULASKI CO., VA.

We are in receipt of catalogue of the animals to be offered by Major Bentley at Weldon on September 12, as mentioned in our last issue. The lots number 41, and comprise some of the finest bred Shorthorns that have ever been offered in the South. They are of that type of Shorthorns that have made the reputation of the breed in this country topped with the finest Scotch blood, and have been purely and carefully bred at Weldon for several generations. They are not merely good pedigreed stock, but good individual animals, and we can with confidence advise those wanting Shorthorns to attend the sale.

THE BEST KIND OF SHEEP TO KEEP.

Editor Southern Planter:

In a former paper I endeavored to show that sheep were desirable farm stock, and could be kept more profitably in the South than in the North or West. Dr. Galen Wilson, who has given the subject a good deal of attention, says: "Growing live stock does not necessarily antagonize growing either corn or cotton—it helps both." He adds: "I feel qualified to advise that, as a rule, it would be best for the Southern farmer to begin stocking up his farm with sheep."

Of the nearly forty millions of sheep kept in the United States (leaving out Texas), only 3,869,236 are kept in the fifteen States lying south of Mason and Dixon's line and the Ohio river, and including Missouri and Arkansas. Excluding Texas, not quite 10 per cent. of the sheep are kept in the South. In the part of the Union where sheep could be kept the most profitably, the fewest are to be found.

When a person has decided to raise sheep, he will naturally be desirous to ascertain the breed which is the best for his locality. I have had no experience with any of the improved breeds except the Cots wolds, which are noble sheep, bearing a good fleece of long, respectable wool, having also the qualities of early maturity, large size, and aptitude to take on flesh. They yield an annual fleece of from 7 to 14 lbs. of wool per head, of moderate fineness, white and strong. When three or four years old, they will weigh from 200 to 275 lbs. per head gross. Some rams attain a weight of 350 lbs. They have a long, thin head, set on a broad chest, a well rounded body and straight back. They are superior to their principal rivals (the Leicesters) in size, hardiness, vitality, weight of wool, and are more prolific, many of them habitually bearing twins. They are excellent mothers and nurses, naturally tame and docile, and are surpassed in size and weight only by the Lincolns. They originated in the county of Gloucester, England, which is situated on the river Severn that empties into the Bristol channel, and is also on the head waters of the river Thames, which empties into the German ocean—the Cotswold hills being the summit which divides the waters that flow in opposite directions. There are three distinct districts—the Cotswold hills, the vale of Berkley with the rich meadow lands lying along the Severn, and the great forest of Dean. The breed is of great antiquity, but has been wonderfully modified and improved during the last fifty years.

Mr. J. H. Sanders, in his *Breeds of Live Stock*, says of the Cotswold breed: "It has been refined in its general anatomy; its carcass has been improved in outline and detail; its fleece has been greatly ameliorated, and its precocity increased."

The Cotswold, Leicester and Lincoln are all large, long wool breeds and greatly resemble each other, the general appearance being so similar it is difficult for inexperienced sheepmen to tell them apart. All have a foretop of wool on the forehead, but the Cotswold's foretop is considerably the longest. The Leicesters are the breed improved by Bakewell, the noted English breeder, who worked upon them many years and made a fortune, but he was a secretive, reticent man, who never revealed his successful method of improvement.

The Lincolns, though the largest sheep in the world, and clothed with the heaviest fleece, have never been popular in the United States or Canada, and are not highly esteemed in England where they originated. They have coarse, large boned frames, require a great quantity of rich food, and are longer in coming to maturity than the Cotswolds and Leicesters. They might do where good pasturage costs nothing, as on the ranches of the far West.

Dr. Galen Wilson, in a letter printed in a New York paper, says: "I have been asked scores of times what breed of sheep I advised for the South, and have always answered the French Merinos or Rambouillets."

According to a writer in *The American Agriculturist*, "They thrive on the rugged hills of New England, the mountains of Pennsylvania, Virginia, North Carolina, the rich bottom lands of the Mississippi and Missouri rivers, and the great plains of the West and Northwest. They have no weak points, and are preeminently a hardy race."

The Rambouillet sheep were originally Spanish Merinos, greatly improved on the government farm of France, near the town of Rambouillet, about thirty miles southwest of Paris. The French pronunciation of the name of the sheep is ron-bö yà.

In 1786, King Louis XVI founded the establishment, and since then it has been sustained by the government for the improvement of French sheep. There is also a government school here for teaching shepherding. For the foundation of the establishment, King Louis procured from Spain 364 Merinos—a breed nearly two thousand years old. They were selected from ten different flocks, widely separated, and not akin, and the best were picked from each flock.

At first, the aim of the managers was to increase the size and symmetry of the body, and the weight of the fleece, and afterwards to improve the fattening capacities, and render the offal less in proportion to the weight of the meat. In all of which they were reasonably successful. In doing this, the original fineness of the wool had in a measure to be sacrificed; but nothing was lost thereby, as the increased weight of the fleece compensated for its less value per pound.

The breed has been kept pure, and received a grand and profitable development, which has given it a world-wide reputation. The ewes weigh from 150 to 200 pounds, and the rams from 250 to 275 pounds. Rambouillets raised in America have sheared sixteen pounds of wool per head.

Sheep husbandry in the United States was never in a more satisfactory condition than at the present. Prices of wool are fair, and mutton is remunerative. It is better that prices are not excessive, so as to cause a great rush of people into the business at once, and create a disturbing influence. Fair prices and stability is best for producers and also for consumers.

J. W. INGHAM.

THE PREPOTENCY OF THE MALE IN CROSS-BREEDING.

Editor Southern Planter:

There is a physiological fact little commented upon by writers on biology—namely, the reproduction of the type of the sire, rather than the individual peculiarities of either parent, in cross bred animals. Cases are constantly coming to our notice where the Hackney, the Percheron, the French coach horse, the Clydesdale, etc., are being bred upon our native mares, and producing foals that approximate quite closely to the breed their sire represents, although there is not necessarily any resemblance to the sire, considered as an individual. This fact is generally accepted, and the reason assigned is, that the sire is thoroughly bred, comes from a long line of ancestors of whom he is an exact reproduction, and consequently stamps his likeness upon his progeny; but this reason, good and valid as all breeders consider it, does not altogether cover the ground, for there have been half-bred horses that were marvelously prepotent, and a by no means small minority of thoroughbreds—race horses whose ancestry traces back farther than that of any other breed of domestic animals—that have failed to obliterate the influence of the dam. There is an extenuating circumstance that will here suggest itself to the thoughtful student of biology—namely, that thoroughbred and trotting bred horses have not been bred so much to type as the heavy harness breeds; but upon farther examination this objection will not hold good, for while man has been using his intelligence with the one object of increasing the speed of the race horse, by breeding from the fastest animals within his reach, nature has made the type in both instances by giving only to individuals of certain mental and anatomical structure the ability to defeat their less favored contemporaries; so that now any observing horseman who resides in a region where both breeds are well represented can distinguish at a glance between the running and trotting-bred horse. It may be accepted as axiomatic, that the more violent the cross the more surely the physical characteristics of the male parent will be reproduced, while the mental organization and nervous system of the female still makes itself evident in the offspring. As an example of this, consider the effects of the most radical equine cross possible, that of the ass upon the mare. This is a common, as well as an extreme one, and illustrates most forcibly the truth of the foregoing proposition, for the produce invariably represents the male in outline and external characteristics, emphasizing the points of greatest variation, as the length of the ear and conformation of the hoofs, while quite as surely possessing the nervous system of the maternal parent in a large degree, it being a well known fact to mule raisers that those hybrids whose dams are thoroughbred, or well bred, nervous, courageous mares, are far superior in spirit and gameness to those whose dams are heavy lymphatic animals. Conversely, the breeding of the horse upon the female ass, produces the hinny, a smaller animal than the mule, but possessing all the external characteristics of the horse. Unfortunately this cross is so seldom resorted to that we have no data relative to the mental phenomena it produces. On the pampas of South America it is customary for those who are financially able to keep at the hacienda small thoroughbred flocks of Rambouillet, or Escurial merinos, and to annually sell the male lambs to neighboring ranchers, who are unable to bear the expense of making direct importations, and those who are familiar with the country say that it is easy to distinguish the French from the Spanish grades, even after several generations of crossing upon the common sheep of the country; although there is no resemblance to individuals that would enable the observer to make any distinction between the get of the two or more sires of the same breed. Mr James Long, of Hitchen, England, in an article written for Consul Shaw, of Manchester, and published in the "Consular Reports on Cattle and Dairy Farming," by the United States Government, page 91, remarks that "The first cross-stock sired by a Red-Polled bull, no matter of what horned breed the dam, is usually red in color and polled in character." And again, in speaking of the Red-Polled bull, crossed upon the Jersey cow, and here the cross is an extreme one, he says: "Some of the animals had a few silver hairs mixed with the red coat, all were polled, and all had black noses." In regard to the crossing of the Hereford bull upon Shorthorn cows, the same writer remarks: "I find that the offspring obtained by the cross with the Hereford bull follows the sire in color in five cases out

of seven." As this is not a violent cross, the prepotency of the sire is quite as marked as would be expected. Flock masters, who are engaged in crossing the Angora upon the common goat, claim that "There is no change in the fiber itself," but that "a new growth of genuine Angora hair starts with the very first cross," while the offspring possess the hardiness and good milking qualities of the common nannies. A close observer will examine a band of mares and their produce by a horse of the same breed, and readily assign to each mare its respective foal, by its resemblance in color, conformation, and facial outline; but if the mares have been bred to a horse of distinctly different breed, or to an ass, the individual maternal characteristics are lost in the general resemblance that all the foals possess to the breed the sire represents. Any shepherd can point out the families of which his flock consists for several generations, provided they have been bred always in the same lines of descent; and what is more to the point, he can go to a strange flock, and after familiarizing himself with the individual peculiarities of its members, point out the relationships of mother and daughter with unerring accuracy; but let him cross his flock of short wools with a Cotswold, or better still, a Merino ram, and after an absence of a few months he will be totally unable to assign his lambs to their respective mothers. It is to this curious law of nature that mankind is indebted, for the facility with which he changes the character of his domestic, and sweeps from a country in a few years the residents it has known for centuries. There are numerous instances of this physiological fact. The disappearance of the pacer from the British isles during the seventeenth century, where he had been the popular means of travel for at least four hundred years, and the extinction of his congener, the Narragansett pacer in this country, during the century following; the transformation of our coarse wooled sheep into Merinos during the first half of the nineteenth century, and the present metamorphosis of those East of the Appalachian mountains during the past fifty years, are all due to the prepotency of the male type, in combination with entirely dissimilar female attributes. It may be that the observations of others, arguing from individual cases, may not bear out this hypothesis, but critics must remember that all breeding operations, and, in fact, all events wherein there enters an element of chance, are subject to the operations of M. Quetelet's law of deviation from an average.* In considering the practical application of these theories, it may as well be admitted that they are of little value to the breeder of any species of thoroughbred animals, where to be successful the student must have both parents approximate as closely to the ideal he has in view as it is possible for him to obtain them, and as this selection will always be from the breed he is working with, there will be no cross-breeding. Good breeds have been produced in the past by resorting to this practice, as, for instance, the Shorthorn cattle, and the Shropshire sheep, but it is not conceivable that any such introductions of outside blood will be needed in any established breed of domestic animals during the twentieth century, and the different breeds are so numerous, and possess such varied characteristics, that the breeder can find almost any combination of attributes without farther crossing or amalgamation of existing types. To the keepers of fancy stock, then, this article is not addressed; they must work out their own salvation within their especial field; but to those who expect to use the characteristics which the breeders of thoroughbreds have established for them, the facts and theories herein presented are especially applicable. They teach that the farm mare, with level headed, quiet disposition, is more suited to breed to the thoroughbred stallion for the production of hunters, where the produce must possess the figure of the sire, combined with the non-excitable mental organization of the dam, but not to the trotting horse for the production of a driver, where great nervous tension is desirable; or to the ass, for mules that are not supplied with a good share of nervous force, become intolerably lazy by the time they reach middle age. On the contrary, the mares that are excitable, and always on their courage, are exactly suited for the production of driving horses and mules, for the nervous system and mental qualities that go to make the desirable road-horse will also make the free, fast-walking, tractable mule; but if this later class of mares be bred to a thoroughbred or saddle horse, the produce will be totally unfit for either hunters—where a level head is only second in importance to the ability to jump, or riding-horses, where a hard mouth and fretful disposition are conducive to neither the pleasure nor the graceful appearance of the rider. In the improvement of our beef cattle, the reproduction of the type of the sire gives great encouragement to the breeder, as the form is here the great desideratum, and, according to the facts presented, the more violent the cross the more surely that possessed by the sire will be reproduced.

This would imply that in sections where the cattle are degenerated Devons a bull of the Shorthorn or Hereford race would more quickly obliterate the influence the of deteriorated dam, than a Devon bull no matter how superior he may be, and *vice versa*, a Devon bull would be more successful upon the scrub Shorthorn or the common white faced cattle. This is the reason why the Polled-Angus bulls are so uniformly impressive when bred upon other classes of cattle, and especially upon the native American stock, as the cross is a violent one in probably ninety per cent. of the cases. For those who are attempting to augment the dairy qualities of their herds through the influence of the sire, the facts do not give much encouragement, as the dam controls the internal mechanism, and all the sire can do is to give the correct form, thin flanks, large barrel, slim tail, and probably the escutcheon. In selecting cows to grade up to any dairy breed, milking qualities and disposition are all that need be taken into consideration; these the bull cannot give, and it is therefore pre-eminently necessary that the cows should be deep milkers of docile disposition, while form, size and color may be disregarded in choosing a commercial herd. The bull should be able to give as much uniformity as is desired in the latter qualifications, provided he is thoroughly bred and of a type distinctly dissimilar to the female he is mated with.

* It may be well to remark, for the benefit of those who have not access to the talented astronomer's tables, that the law of "deviation from an average" bears about the same relation to the "exception that proves the rule" as the "laws of heredity do to the truism, 'Like begets like.'"

It is upon turning our attention to sheep that we meet with the most gratifying evidence of the prepotency of the respective parents. The cross-bred lamb will inherit the outline and fleece of its sire and the disposition, digestion and milking aptitude of its dam, and here is an opportunity within reach of every one, for our native ewes—being a pure "survival of the fittest"—are good milkers and good "hustlers," making a living on the poorest feed, and lacking only what the sire can give—correct form and a good fleece. It is not the purpose of this article to go into minutiæ; suffice it to say, that when a law of nature is found to exist in one species, it will generally be present in a modified form in all others. The above principles may be safely applied to uniparous animals sheep, goats, and all species that habitually bring forth one or two at a birth; but in multiparous animals, they would probably be applicable to a majority of the litter only—the percentage of fetuses that resemble the sire increasing or decreasing as he differs from or approximates to the type of the dam. In selecting the parents of cross breed solipeds, the sire should possess the form, habit of action, size and color—the importance being in the order named—which is desired in the foal. The dam must have the mental organization, constitution and size. The ruminants are divided under three heads for consideration in this paper—*i. e.*, beef cattle, dairy cattle, and sheep. In the former the attributes of the sire should be form, color and size; those of the dam disposition, inclination to lay on fat, and size. In cross breed dairy cattle, the bull can do little but give the correct form and color; the important characteristics—such as disposition, constitution, and ability to convert all food into milk, must come from the dam.

And lastly, sheep. The ram should possess the desired fleece, form and size; the ewe the constitution, mental organism as evinced by the care she takes of her offspring, the ability to give plenty of good milk, and lastly, size, if it can be obtained without sacrificing the foregoing requisites. The ancients taught that the ethereal influence came from the father, while the mother's functions were merely those of a nurse, but modern science, based upon observation and reason, has, in this instance, as in thousands of others completely inverted these ideas, and we find that the outward forms are those generally transmitted by the male, while the internal and mental attributes are inherited from the maternal parent.

Aeolus, Va. PERCIVAL HICKS.

DISTEMPER IN CATTLE.

Editor Southern Planter:

I herewith enclose a leaf from the *Planter and Farmer* of the issue of May, 1869, containing a letter from W. R. Hatchett, of Keysville, which I think will pay our farmers if you will republish it in the *Southern Planter*. I am convinced that he is right. Last fall old Mr. Worley lost all his cattle except one cow, which he turned out to die. Two days after she was found in a gulley eating red clay, and in a few days after she came home well. This case convinces me that there is much that is worth trying in Mr. Hatchett's advice.

Buckingham Co., Va. J. H. NOBLE.

The following is the letter referred to:

DISTEMPER IN CATTLE—PREVENTATIVE.

Messrs. Editors,—Having seen it stated the past year that the distemper prevailed amongst the cattle around Richmond, as also in some other places, I feel disposed to republish the substance of a communication of mine in the *Southern Planter* for 1854, which, as a preventative, I have never yet known to fail.

About the first week in May, procure a trough to correspond in size with the number of cattle; place it where they are penned, and bore a hole through the bottom to let off the surplus water after a rain. Fill it nearly full of red clay, then put on a liberal quantity of salt, and when the cattle are penned at night they will invariably go to the trough and lick to their satisfaction. The first rain that falls, the salt will saturate the clay, and the cattle will consume the whole of it. This remedy must be continued until the first hard frost.

My father was the first that I know of who adopted this treatment, he having heard that cattle afflicted with distemper had been known to resort to red clay and get well. He, I suppose, recollecting that nature often performed a cure beyond the powers of art, salted his cattle some two or three times a week on a red galled spot, and although his neighbor's cattle were dying rapidly around him, and that for several years, yet he never had a solitary case amongst his stock. For some two or three years he kept them in his enclosures, but after this, in consequence of an imperfect fence, his cattle would go on an adjoining common, and roam with his neighbors' distempered cattle from week to week, yet they entirely escaped this infectious disease. These facts speak for themselves and go to prove that my father's remedy is a specific to stay this fatal malady.

An uncle of mine told me years ago that, the distemper being amongst his cattle, one of his milch cows was taken with the disease, went off, and when found, was in a gulley eating red clay, and got well.

One of my sons at one time lost all his cattle except a milch cow, and when taken with the disease, she went off, was gone several days, and when found, was in a gulley eating red clay, and she got well.

Here we have the instincts of nature beautifully exemplified, and, we may add, the dog, when sick, seeks relief from herbs, and the guayakil, when bitten by a serpent, finds an antidote in a certain plant.

In the *Southern Planter* for 1845, *lime water is recommended as a sovereign cure for distemper, even in the last stages of this disease; and, by the way, this is said to be the best known remedy for distemper in horses.

The late Dr. Wm. S. Morton, in a communication to the *Southern Planter* in 1854, on distemper in cattle, said: "I strongly suspect that what we call distemper is the bloody murrain of Scotland and other parts of Great Britain, and that it was carried to North Carolina by Scottish immigrants." The above suggestion I have reason to believe is correct, as I once lived in North Carolina, and, from authentic information, I learned that the first cases of distemper occurred in

* Half a bushel of water to a peck of lime; let it stand until the water is clear; then pour off the water, and drench with a quart twice a day until the animal recovers. Three or four doses are generally sufficient.

that State near Fayetteville, which was settled principally by the Scotch. Hence the new name—"Carolina distemper."

Keysville, Va., April, 1869 W. R. HATCHETT

We republish the letter as requested in order that farmers may see the suggested remedy. We have, however, no faith whatever in it. At the time when the letter was written, scientists had not investigated this so called "Distemper," and veterinarians were unaware of the cause of the disease. Now it is a clearly established fact that it is a contagious disease, conveyed from one animal to another by the Texas fever ticks, and that just in so far as these ticks are kept from the cattle in so far are the cattle safe from the disease. If we can get rid of the ticks, we can get rid of the distemper; and by proper regulations and laws, and the strict enforcement of these, and by the adoption of the "no fence" law, we can get rid of the ticks. Inoculation now bids fair to be a preventative of the disease, and we look forward to the time as being near at hand when every stock owner in the quarantined sections of the South will have every young heifer or steer inoculated. In Louisiana, Texas and Missouri, this is already being done, and the loss from "distemper," so-called, really Texas fever, is steadily diminishing. This, and the destruction of the ticks, is the only real preventative. Salt and red clay may not hurt the cattle; salt certainly will do them good, whether suffering from distemper or not; but we doubt strongly their having any curative powers.—ED.

STEER-FEEDING AT THE VIRGINIA EXPERIMENT STATION.

Editor Southern Planter:

The following notes concerning steer-feeding were undertaken upon completion of our barn and run until the supply of silage was exhausted. The work is only preliminary to an extensive study of feeding stuffs for steers, cows and hogs, in the economy of production of beef, milk, butter and pork. The animals used in this work were in rather too high condition to give best returns, and the food given was more to keep them up to the standard they had acquired than to add largely in growth or flesh. The eight steers selected were fed in pairs as nearly alike as possible, but soon after the first weighing No. 6 was thrown out on account of a very sore foot, making a comparison of gain with the others out of the question. The remaining seven were healthy throughout, but, for some cause unknown, No. 8 did not eat well for two weeks, accounting probably for the very considerable loss in weight, though this was greatest after the animal had regained its appetite.

CONDITIONS CONCERNING FODDERS.

The ear corn was weighed as taken from the crib, given to steer No. 1, and cobs left thrown away. All cob meal means corn and cob ground together. Animals were allowed all the hay or stover they would eat.

Estimated value of food:

Hay, per ton	$10 00
Stover (dry corn fodder), per ton	4 00
Corn silage, per ton	2 00
Cotton-seed meal, per ton	25 00
Bran, per ton	15 00
Oats, per bushel of 32 lbs	30
Corn, per bushel of 70 lbs. on cob	40

Steer No. 1.—Kind and Weight of Food Consumed in Four Weeks and Cost of Same and Result

Ear corn, 140 lbs.; bran, 140 lbs.; oats, 140 lbs.; hay, 420¾ lbs.; cost of food per week, $5.34. Loss in weight, 5 lbs.

Steer No. 2.—Kind and Weight of Food Consumed in Four Weeks and Cost of Same and Result.

Cob-meal, 140 lbs.; bran, 140 lbs.; oat meal, 140 lbs.; hay, 348¾ lbs.; Cost of food per week, $4.99. Gain, 78 lbs.

Comparing steers No. 1 and No. 2, the latter made a good gain, while the former made a slight loss, and this even though No. 1 ate most hay. Feed was the same except that the grain of the second was all ground and possibly thereby better digested.

Steer No. 3.—Kind and Weight of Food Consumed in Four Weeks and Cost of Same and Result.

Cob-meal, 168 lbs.; bran, 168 lbs.; cotton seed meal, 84 lbs.; hay, 323½ lbs.; weekly cost of food, $4.90. Gain, 94 lbs.

Steer No. 4.—Kind and Weight of Food Consumed in Four Weeks with Cost of Same and Result.

Cob meal, 420 lbs.; hay, 356¾ lbs; weekly cost of food, $4.19. Gain, 9 lbs.

With No. 3 and No. 4 we see just as wide a variation, the former making a very large gain, while the latter made a slight one, with weekly cost of food somewhat in favor of the latter. No. 3 was the only one in the bunch that made a continued gain, each of the others having one or more periods of loss. In this instance the only cause for the variation in gain, so far as the food was concerned, was that the corn of No. 4 was, for No. 3, partly replaced by bran and cotton-seed meal.

No. 5 and No. 6 were each to have had silage, but the latter is not recorded for the reason mentioned above. No. 5 increased in weight only 18 lbs. in the 28 days, but, when the cost of food is taken into account, the showing, as compared with others, is not a bad one.

Steer No. 5—Kind and Weight of Food Consumed in Four Weeks with Cost of Same and Result.

Cob-meal, 84 lbs.; bran, 140 lbs.; cotton seed meal, 70 lbs.; hay, 203 lbs.; silage, 448 lbs.; weekly cost of food, $3.90. Gain, 18 lbs.

Steer No. 7.—Kind and Weight of Food Consumed in Four Weeks with Cost of Same and Result.

Cob-meal, 168 lbs.; bran, 168 lbs.; cotton-seed meal,

84 lbs.; stover, 234 lbs.; weekly cost of food, $3.74. Gain, 2 lbs.

Steer No. 8.—Kind and Weight of Food Consumed in Four Weeks with Cost of Same and Result.

Cob-meal, 370¾ lbs.; stover, 298¾ lbs.; weekly cost of food, $2.70. Loss, 53 lbs.

The grain ration of No. 7 and No. 8 was the same as for No. 3 and No. 4, but the hay was replaced by corn stover. On account of not eating grain, No. 8 should be thrown out entirely. The gain of No. 7 was but a trifle, and this would indicate that the stover, without other roughness, did not take the place of the hay.

The total number of pounds of each that was eaten was nearly equal, but the quality of the stover was not of the best, while the hay was a strictly first class article. As might be expected, and as is often the case, the best results in general were obtained by a considerable va riety of foods. Palatability plays just as important a part in the value of any food product as does its chemical constituents.

BRIEFS.

Ground corn seemed better than whole corn, especially when fed dry.

A considerable variety of food seems desirable.

Corn alone, as with other foods generally, does not give the best returns.

Corn silage, as one portion of the roughness, is desirable.

The largest gain obtained was with rations containing cotton-seed meal.

The only animal refusing grain at any time was one whose grain ration was composed of corn alone.

D. O. NOURSE,
Blacksburg, Va. *Agriculturist.*

THE FLATT SHORTHORN SALE.

It is necessary to hark back sixteen years to find an average at an auction sale of Shorthorn cattle equal to that recorded at the Flatt offering Tuesday, August 7, when fifty-nine head averaged $793.40. Counting with their dams three sucking calves, catalogued with the cows, but sold separately (a method of calculating averages sometimes used), we have an average of $836.30 on fifty-six lots. The full significance of these averages can only be appreciated when it is stated that no extreme prices were bid. The top price was $2,600, the bottom $275—the only time the figure fell below $300. An agreeable feature was the total absence of anything that savored of a "boom." Values were sustained because the cattle suited. We say cattle advisedly. If the pedigrees also had suited the "straight" men, the "purists," prices of animals possessing such pedigrees would probably have ranged somewhat higher. There is much comfort and encouragement in the fact that the individual excellence of the offering rather than the paper pedigrees commanded the high prices. This fact should certainly give pause to those misguided breeders who are fatuously following in the "straight" path that has heretofore led to destruction in cattle-breeding.

The assembled representatives of the Shorthorn breeding industry in America gave ample evidence by their bidding of the strong demand to day existing for good cattle. The most notable feature of the event was the rapidity with which prices mounted to $500 and $600, clearly evidencing the fact that there were many men in quest of cattle around $500. But they were discriminating in their bids for the most part. The few animals not up to the general high average of the consignment in quality found their level in the bidding. It is a good omen. The word "imported" was not an open sesame to pocket-books. At all such times of activity there is danger of men grasping at the shadow rather than the substance. There are now in quarantine about 225 imported Shorthorn cattle, and, with those already released, the record for 1900 will probably include purchases abroad of 500 of this breed. That not all of this number were worthy of importation may be accepted as a fact, and that breeders on this side the line do not intend to buy animals at big prices merely because they are imported was plainly demonstrated at Dexter Park. The business is thus on a safe basis. We can well do with the "tops" of British herds; we have enough of our own "tails." The results of this sale, gratifying to Shorthorn breeders as setting the auction-ring record for years past of all breeds, should emphasize this warning. It is no invitation for speculators in cheap cattle to rush in; it is rather a positive warning that such speculation would prove unprofitable.—*Breeder's Gazette.*

THE STOMACH WORM OF THE SHEEP.

The stomach worm of the sheep known as "strongylus contortus," and infesting the fourth stomach (abomasum), is described by Prof. Hickman, of the Ohio Agricultural Experiment Station, in a recent bulletin as a slender, thread-like worm, from three fourths to one inch in length. Sometimes the worms are white in appearance, and at other s present a reddish color, presumably as they are more or less filled with blood sucked from the mucous membrane of the stomach. They may be few or many, and the inexperienced will find some difficulty in locating these worms unless they are very numerous. It is best to turn the contents of the abomasum out, in which case they will be found either in small numbers, or it may be by the hundred, twisted round worms packed together, their heads buried in the mucous membrane, which is thick ened and often bloodless in appearance. Occasionally they may be found in clumps or balls.

In giving a description of the symptoms of stomach worm invasion, it is difficult to point out a special characteristic one for this particular species of worm. The animal affected is dull; spends much time lying stretched out; suffers from depraved appetite; is frequently found eating earth, bedding, sawdust, or rotten wood; lags behind the flock; becomes poor in flesh, sometimes dropsical; the eyes lose their lustre; the limbs are sluggish in action; the face and skin show a decided paleness, while the ears show more and more of a drooping tendency. Lambs frequently suffer from attacks of colic, and in the latter stages of the disease are afflicted with diarrhœa, generally terminating in death, which is likely to occur in a few

days after the disease is observed. If the animal does not succumb to the invasion of these worms, it is likely to become stunted, and to require a great amount of food and care to place it in a condition to become a profitable stock sheep or feeder.

Lambs infested with the worm at the Ohio Experiment Station were allowed to go without treatment for two months, at which stage the gasoline treatment was commenced. At this time but few of the flock were healthy looking, and some of them were quite thin in flesh. There was every indication that from one third to one half of the flock would succumb to the disease. The gasoline seemed to check the trouble at once, as there was not a single death after beginning the use of it. The treatment consisted in simply giving gasoline in flaxseed tea in the form of a drench.

To describe more accurately: About one gallon of flaxseed, contained in a cheese cloth sack, securely tied, was placed over the fire in a kettle, containing at least two gallons of soft water, and allowed to steep for from one to two hours. The sack was then removed, and allowed to drain out into the kettle while the tea was cooling. When the temperature was reduced to about that of freshly drawn milk, four ounces of the tea were measured out into a bottle, and in it mixed for each lamb, weighing from 60 to 80 pounds, one ordinary tablespoonful of common gasoline. Then placing the thumb over the mouth of the bottle, it was shaken vigorously for at least a minute, after which it was poured quickly into a small-sized drenching bottle, and at once given to the lamb. In giving this drench, special care is necessary not to strangle the lamb. The animal should be set up on its rump, and held between the knees, using care not to throw the head much farther back than the line of the back of the sheep.

The gasoline may be given as successfully in new milk as in flaxseed tea, and should be administered to the lambs after they have been fasted for twelve hours. After the administration of the medicine, the sheep should not be allowed to eat or drink for at least two hours. This treatment should be given on three consecutive days, and repeated in from seven to ten days for three consecutive days.—*The Shepherd's Bulletin.*

ADVANTAGES OF DAIRYING.

One reason why dairying is bound to come more and more into favor is because of the increased production of the cow over the steer. Lawes and Gilbert, of England, found the increase of a fattening steer in one day to be as follows:

Ash	1.47 per cent.
Protein	7.69 "
Fat	66 2 "
Water	24.6 "

On the following ration of 30 lbs. ensilage, 4 lbs. cotton seed meal, 4 lbs. bran, 4 lbs. corn meal, and 10 lbs. mixed hay per 1,000 lbs. live weight, a good dairy cow ought to produce 20 lbs. of milk, and a steer should make 2 lbs. of gain per day. By reference to the table given below, the returns from each can be readily ascertained:

In 20 lbs. cow's milk—		
Sugar	.94	per cent.
Fat	.72	"
Protein	.80	"
Ash	.14	"
Total	2.60	"

In 2 lbs. increase on steer—		
Sugar		per cent.
Protein	.15	"
Ash	.03	"
Fat	1.30	"
Total	1.48	"

The cow's milk contains over 1 per cent. more solids than in the 2 lbs. gain of the steer. The cow has produced 94 per cent. of sugar against the steer's nothing, five and one third times as much protein, and over half as much fat and if the sugar is reduced to its fat equivalent, nearly as much fat as the steer. Practically all of the constituents of milk are digestible, and it constitutes the best and most nourishing of foods. It is thus apparent that the cow is by far the most economical machine for the condensing and manufacture of our coarse fodders and grains into cheap food products.

In an experiment conducted at the Ontario Agricultural College, one of the group of steers fed on a ration of 53.50 lbs. of ensilage and 9.64 lbs. of mixed meal for 150 days, gave the following financial results:

Cost of steer at commencement of test		$51.92
Cost of food		19.60
Cost of attendance		3.13
Total cost		$74.65
Value of steer at close of test	$92.88	
Value of manure	6.75	
Total value of steer		$99.63
Net gain		$24.98

A good cow, fed this same ration for the same period, cost of attendance the same as for steer, ought to produce twenty five pounds of milk a day. Assuming the milk to contain 4 per cent. of fat and the cow to be worth the first cost of the steer, we have the following financial results for butter dairying:

Value of cow	$51.92
Milk produced (25 x 150 days), 3,750 lbs., equal to pounds in butter, 168.75 lbs., worth at 25 cents per lb.	42.18
3,200 lbs. skim milk, at 25 cents per 100, for feeding purposes	8.00
Value of manure	6.75
Total value of cow and product	$108.65
Net gain of cow over steer	$9.22

This seems to be a fair comparison of the relative value of the cow and steer in the production of agricultural wealth.

ANDREW M. SOULE.
Experiment Station, Knoxville, Tenn.

The Poultry Yard.

FALL MANAGEMENT OF POULTRY.

From this time to March next eggs and chickens will be in constant demand at increasing prices. This then is the time within which it behooves every farmer and poultry-keeper to give his fowls the necessary attention and care to make them producers of what the public wants, and wants badly. There are two points especially calling for attention. The one is to induce the old hens to moult quickly, and the other to induce the pullets to commence to lay not later than October. Pullets commencing to lay in October may almost certainly be counted on as layers through the winter if given proper care and food. Before the old hens commence to moult select from them all in excess of three years of age and those younger than that age which have not proved themselves to be producers of eggs in quantity. Let all these be sent to market at once. If kept longer they will commence to drop their feathers, and then be unsalable until they have got their new coats. Meanwhile they will be to keep, and will be large consumers, and at the end of the time be worth no more than at the present time. The younger hens kept should be induced to commence to moult, and be so fed and cared for as to hasten the change of feathers as quickly as possible. At the Experiment Station in Canada an experiment was recently conducted with the object of determining whether it is possible to hasten the moulting. The following report was made on the subject: "In July the breeding pens were broken up and the male birds removed to separate quarters. The hens were then allowed to run promiscuously in small fields. In these fields they had grass and clover and a certain amount of insect life. The rations were composed of wheat, buckwheat and oats, the two lat ter mixed, and were fed twice per day. During Aug ust a warm mash, composed of ground grain, to which was added deodorized blood meal in the proportion of one ounce to every ten hens, was fed three times a week in the morning and a grain ration in the afternoon. When cut bone could be procured it was fed in lieu of the deodorized blood meal, and in quantity of one pound to every fifteen hens. A light noon ration was occasionally given. This treatment was continued until the new feathers were fairly well out, when the noon ration was dropped, and every care was taken to prevent the hens becoming too fat. Towards the end of October cut bone in the proportion named was fed three times per week regularly. When laying had fairly commenced in November, a small quantity was given every day. Roots or cabbages were in abun dant supply.

Experience proved that with the above treatment carried out and care taken that too much was not fed and an overfat condition produced, the hens commenced laying in October and gradually increased their output through the winter." To the above course of feeding we would suggest the addition of a little flaxseed meal to the mash feed two or three times a week—say, a handful for each ten hens. The question of feed is the important one in securing winter eggs. During the past week a subscriber called on us, and in the course of conversation said: "I had a wonderful egg yield from my hens last winter, and I want you to tell the farmers how I secured it. I had an acre or two of cow-peas sowed near the buildings. In consequence of scarceness of labor, I was unable to get all the peas gathered—in fact, a large part of them remained. I decided to allow the vines and peas to die down on the land and lay there all winter. The hens soon found the peas, and they literally lived on the patch until spring, and gave us eggs in quantity all the time." This report as to the value of cow-peas as winter egg feed is confirmed by a report from a gentleman in Maryland, who followed the same plan. His hens harvested the peas from a plot of land last winter, with the result that he had eggs when none of his neighbors had any. We have before advised the feeding of cow-peas to hens, as their richness in protein indicates that they should make eggs. If you have no cow-peas, and even if you have the peas, we would advise the feeding along with them of wheat, oats, buckwheat and corn mixed for one feed per day, with a hot mash in the morning during cold weather. The cow-peas may largely take the place of cut bone if you have them. Cut bone and meat scraps should, however, be fed twice a week. With such feeding, good, dry, warm houses, and a young healthy flock, eggs should be plentiful all through the winter—that is, assuming that you are keeping a good laying variety, such as Leghorns, Plymouth Rocks or Wyandottes. We have often found that crossbred hens—the produce, for instance, of a purebred Leghorn rooster on Plymouth Rock hens, or of a purebred game rooster on Leghorn hens—better layers than the purebred hens.

NOTES.

See that all necessary repairs are made to the hen houses, and that doors, windows and roofs are made wind and weather tight. Have the houses limewashed thoroughly with wash, in which kerosene or carbolic acid is mixed. Have all perches and nest boxes cleaned and painted with kerosene. If the floor of the house is the natural soil, have it spaded over and then covered with five or six inches of clean sand.

The Horse.

RAISING THOROUGHBREDS.

Editor Southern Planter:

I have noticed an article in the August number from "V." of Tennessee reflecting in a mild way upon my sales of yearlings and offering a lot of advice for which I am profoundly thankful. I hope "V." wrote with the best intentions, and I shall endeavor to reply in the same spirit. To be perfectly fair, "V." should have taken my sales of 1899, when twenty of my yearlings of *both sexes* brought within a fraction of twelve thousand dollars, and should not have confined himself to this year's sale alone, which was, at least, satisfactory to me. If "V." had noticed the big sales, as he terms them, he would have discovered that those breeders were simply selling their tops—their best and finest colts—while the smaller colts and fillies were left at home to be worked off as best they could in the Western markets. With us, we sell everything from top to bottom—the fillies as well as the colts, the small ones as well as the large ones—except we reserve a filly or two every year for a brood mare. Again, there is no trading or trafficking with our sales. Every animal put up is sold to the last and highest bidder, and for the cash. We prefer at all times to sell a good colt for two hundred dollars and get the money for it, rather than sell the same colt for eight hundred and *never* get the money, while the latter figures may look better in print.

"V." speaks of Mr. Aristides Welch's way of feeding his colts. It was notorious that Mr. Welch's yearlings were always small, and while Leamington had good eyes to the last, a larger per cent. of his foals went blind than those of Lexington, who was himself a blind horse—the result, no doubt, of feeding corn meal and perhaps other heating food. We tried the same process here at Ellerslie, found similar results, and quit it. Mr. Welch even insisted that Leamington be ridden twenty miles every day, except Sundays, or when raining or snowing, he had light gum clothes for him. Yet Eolus, a son of Leamington, lived four years older at Ellerslie than Leamington did at Chestnut Hill.

R. J. HANCOCK.

NOTES.

The fact that a circuit of North Carolina fairs and race meetings has been formed will be hailed with pleasure, and that it will be accorded generous patronage and support is not to be doubted. The Virginia State Fair takes place during the first week in October, after which comes the first of the North Carolina meetings at Greensboro, where the Central Carolina Fair Association begins October 9th and lasts four days, which is followed by the Alamance Fair at Burlington, October 15th to 20th, and this is followed by the North Carolina Agricultural Society's Fair and race meeting—the largest and most prominent affair of the circuit, and where many thousands of pleasure seekers and others gather during the week of October 22d to 27th. The Fair and races of the Piedmont Park Company at Winston and those of the Roanoke and Tar River Agricultural Society at Weldon come off during the week following at Raleigh, consequently their dates conflict, but as they are some distance apart and reached by different routes, it is more than likely that the clash of dates will not affect either Association much. The week following these meetings seems to be open, but November 12th to 17th has been fixed for the fair and races of the East Carolina Fish, Oyster, Game and Industrial Association at New Berne, which closes the circuit.

One of the moving spirits of the Rockingham Horse Show, and a member of the Board of Directors, is Mr. James Cox, owner of the Belgravia Farm at Mt. Jackson, but who makes frequent trips to Harrisonburg, and was there during the horse show. Belgravia is one of the fairest spots in the far famed Valley of Virginia, and Mr. Cox has spent a fortune in improving the farm and stocking it with trotting horses. The farm mansion is a handsome structure, and furnished with refined taste and elegance, while the outbuildings are in keeping, especially the main barn, which was designed and built after the noted training barn of John Splan at Glenville, Ohio. Kelly, the son of Electioneer, and the great brood mare Esther, thoroughbred daughter of Express, heads the Belgravia stud. Esther figures as the dam of that marvellously good three year old campaigner Expressive, 2:12¼ and three others, while one of her daughters produced the fast horse Esparto Rex, 2:15¼. Kelly is a very impressive horse in appearance—really one of grand finish and beauty of form—while his record of 2:27 does not indicate his speed, as in his work the bay stallion could show a two minute gait. Belview, the son of Belmont and Lady Simmons, by Volunteer, is the stud companion of Kelly, and few harness horses can show greater style and finish, while he has speed with it. Belview's record is only 2:30¼, but guided by the fine amateur hand of his owner, the bay stallion trotted a trial in 2:23 over the Pimlico track at Baltimore, while hooked to sleigh and barefooted the rangy son of Belmont can show a terrific rate of speed on the snow path. The big brown mares, Frances S., 2:27¾, by Cadmus, Jr., 2:26, and Cherie, by Axtelloid, are driven to pole by Mr. Cox, and there is no better mannered team in Virginia. Frances is out of Daisy Dayton, dam of Riverside, 3:29¼, and Lake Erie, 2:13¼, while Cherie has for a dam Lady Purdy, full sister to the crack campaigner Charlie C., 2:13½, Sam Purdy, 2:20¼. The brown mare Alcyrene, 2:27¾, but who has trialed in 2:19¼, is driven in single harness. She is by Alcyone, out of Bessie Oliver, by Kearsarge. A very choice brood mare

owned at Belgravia is Erena, 2:19¾, by Alcyone, out of Estella, by Clark Chief, who was purchased especially to mate with Kelly. She is the dam of Alcyone, 2:17¼; Hodges, 2:28½, and Iams, 2:28½. Among the younger horses at the farm are Morelle, 6, by Belview, out of Aconite, by Tremont; Kingston, 4, by Kelly, out of Ruby McGregor; Kitchener, by Kelly, out of Morelle, and a bay filly, one year old, by Kelly, out of Minnie Montrose, by Robert McGregor.

The annual exhibition of the Rockingham Horse and Colt Show Association, which took place at Harrisonburg, Va., was well attended and a success financially, while the exhibits were highly creditable to that section of the State. The different classes filled well, and in many of them the competition was keen, but the awards of the judges seemed to be favorably received; and though a spirit of healthy rivalry prevailed, yet good humor and merriment prevailed on all sides. The display of heavy draught horses was unusually good, probably one of the best ever seen in Virginia, while all of them were home produce, which made it all the more creditable. The class for four-horse teams resulted in strong competition, and several of the teams shown, if shaped up and taken North, would have brought probably a thousand dollars or more. The display of yearlings and sucklings of all breeds was about the best ever seen in the Valley of Virginia, and furnished ample evidence that farmers and others were bringing greatly improved methods into play. Thoroughbred, trotting, saddle, hackney and draft stallions were exhibited, which, with their produce, formed one of the chief attractions of the show. Secretary Dr John A. Meyers was in high feather over the result, as were President J. C. Steigle and other officers of the show.

Among the foals of 1900, at Alamance Farm, Graham, N. C., the property of Mr. L. Banks Holt, are some very choice specimens by Gregorian, 2:29¾, the son of Prince George and Belina, by Mansfield, who heads the stud. Blondette, the dam of Governor Holt, 2:15, and full sister to Minturn, 2:16¼, has a bay filly; Winnie D., the dam of Ginter, 2:16½; Hulman, 2:20, and Mayo, 2:28½, and full sister to Whitby, 2:18¼, has a bay colt; Coralyn, one of the largest and handsomest daughters of Dictator, has a brown colt, while Gretna Green, the full sister to Matrimony, 2:23¾, by Aberdeen, has a bay filly, and all were bred to the chestnut son of Prince George. In the training barn at Alamance, William Chatman, the farm trainer, has Giles Mebane, the brown colt, four years old, by the famous pacer, John R. Gentry, 2:00¼, out of Winnie D.; Eliza Ingram, chestnut mare, four years old, by John R. Gentry, out of Blondette; Maid of Alamance, chestnut mare, four years old, by John R. Gentry, out of Lou Graham, by Melville Chief; Lina Clark, bay filly, two years old, by Gregorian, out of Blondette; chestnut gelding, two years old, by Gregorian, out of Winnie D., and a chestnut gelding, two years old, by Gregorian, out of Lou Graham.

Geo. F. Dyer, a member of the well known firm of trainers and drivers, Dyer Brothers, of Roanoke, Va., is now located at the Fair Grounds, Winston, N. C., where he is training a string of trotters and pacers. Dyer has developed and brought out among other good ones the fast mare Mary D., by Cheyenne, 2:09½, who was sold last spring to Roy Miller for $5,000; Laura D., 2:22½; Lady Phillips, 2:19¼ and others with slower records. His stable now includes Queen Bess, roan mare, by Blue Bird, dam by Florida; Princetell, pacer, chestnut gelding, by Drexell, dam by Kentucky Prince; Kate Campbell, chestnut mare, by Mercury, dam by Tennessee Wilkes; brown gelding 5, by King Jewell, dam Amanda Martin, by Aparka, bay gelding, by Jolly Friar, dam by Mellville Chief, and some well bred youngsters by prominent sires of speed.

Dr. P. O. McDonald has registered with the Messrs. Weatherby, London, the following names for American bred horses: Dulhallo II, for bay mare 5, foaled 1895 by Castaway II, dam Glow Worm, by Grabriel, and St. Ita II, for bay mare, foaled 1895, by Eleve, dam Amulet, by King Bolt. Dulhall II was bred by A. D. Payne, Charlottesville, Va., while St. Ita II was bred by H. C. and R. M. Beatie, of this city.

The bay mare Betsy Tussey, by King Nutwood, dam Miss Windsor, by Windsor, has at her side a very handsome bay filly foal of 1900, by Gregorian, which is highly prized by her owner, Dr. J. T. J. Battle, of Greensboro, N. C. In the hands of T. M. Arrasmith, who trained her a part of one season, Betsy Tussey trotted a half mile in 1:11, but went wrong and no further work was given her; however, if the mare keeps right, she will be handled again this fall and fitted for a record.

E.T. Cox, of the Hundred Farm, Bermuda Hundreds, Va., has lost by death, due to accidental causes, the fine brood mare Kate Messenger, by Messenger Chief, dam Lady Lumber, by Lumber. Several of her produce are owned at the Hundred Farm, among them the brown stallion, Judge Cox, the son of Phalanx, that sired Kate Cox, 2:20.

The bay gelding Alsike, by Flatlands, out of Lucky Clover, a product of the Fort Chiswell Stud, Max Meadows, Va., keeps on adding to the bank account of Father Bill Dayl, for whom he has recently won several races.

The chestnut gelding Foxhall, 2:19¾, by Great Stakes, one of this season's new performers, who was bred by Capt. John L. Roper, Norfolk, Va., is out of Sue Norfolk, by Norfolk, and the first of the daughters of that dead son of Nutwood to become a producer of standard speed. Norfolk was brought to Whitby Farm as a yearling, and remained there till his death, in 1898.

Bird Eye, 2:14¼; Rustler, 2:15½, and Roster, 2:16¼, the first named of which was bred in Virginia, while the others were brought here as yearlings and then developed in the State, sold at an average of $35 each as yearlings. They were not attractive in appearance when sold, but, like other well bred youngsters, improved with age and handling.

BROAD ROCK.

Miscellaneous.

FARMERS' INSTITUTES IN VIRGINIA.

Under the authority of the State Board of Agriculture and the direction of the Commissioner of Agriculture, Farmers' Institutes were held at Chatham on the 7th, South Boston on the 8th, and Farmville on the 10th and 11th August. The Commissioner was accompanied by Prof. S. B. Heiges, of York, Pa., who lectured on "Fruit Culture and Diseases of Fruit," and on "Diversified Agriculture;" S. F. Barber, of Harrisburg, Pa., one of the most successful dairymen of that State, who spoke on "The Little Things that Cause so Much Trouble in the Dairy," "How to Build and Fill a Silo," and "Breeding and Feeding Hogs for Market;" the Hon. J. M. Barker, a member of the State Board of Agriculture, and one of the largest tobacco growers in the State, who spoke on "Tobacco Growing and General Farming." The Commissioner of Agriculture spoke on "Fertilizers and Improvement of the Soil." There was a fair attendance of farmers at each place, and they expressed themselves well pleased with the work, and promised to interest their neighbors in support of institutes and to give a fuller attendance at any future institutes which might be held in those counties.

TRUSTS AND THE PEOPLE.

Editor Southern Planter:

About "Trusts and the People," by Rev. Sam. P. Jones, republished in the *Southern Planter* of August, permit me to say a few words in answer.

Any one who has read the history of the ancient republics of Sparta, Rome, Carthage, and tried to trace their downfall, will always find the cause in the aggregation of capital.

Therefore, the aggregation of capital is not only theoretically hurtful to the masses of the people, but it is so practically. I am so far of the opinion of the Rev. S. P. Jones, that the combination of capital does bring about many improvements, but we cannot look at the immediate consequences of combined capital alone and consider the good coming from it, but we must be fair, and consider also the hidden evil of it. I am far from crying "down with the trusts," but I do wish to cry, "People, wake up and make such laws that the trusts cannot crush your individual and economical liberty."

But again. I consider trusts the logical outcome of our laws of the rights of property. If a man has the right to buy $100 worth of goods, and has the right to sell these goods for whatever price he can obtain for them, I cannot understand why a man or ten or fifty men, each investing a million of dollars, should not have the same right as he who invests but $100. A man may be called a thief if he steals ten cents, and a thief he may be called if he steals $1,000,000. Why should the $100 merchant be considered honest and the million-dollar merchant dishonest? Before you can crush the trusts with honest and just laws, you must change the constitution of the United States for equal laws for all citizens is one point of it. In making exceptional laws dealing with trusts, you do not act according to the meaning of the constitution.

But as combined capital is the death foe of individual liberty and independence, and irresistibly drags the masses down to abject submission, means will have to be found by the people to remedy this evil. Wealth is created by the masses and not by the individual; the benefit of wealth, therefore, should not belong to the individual but to the masses. What means will have to be employed to achieve this end is a matter for consideration, but whatever these means may be, any means are to be approved which accomplish it.

Lunenburg Co., Va. JOSEPH FRANK.

We publish this comment in order that both sides of the question may be heard, and not because it reflects our views on the subject. We doubt very much whether the commonly accepted statement that the downfall of the ancient republics was caused directly by the aggregation of capital is true. We rather incline to the opinion that it was only a coincidental fact. These republics depended for their existence upon the virility of the people and their subordination to authority and respect for law. With growing wealth, the people and their rulers gave themselves over to sensuality, licentiousness and disregard of law and authority, and hence fell a prey to their more virile, better disciplined and authority-respecting neighbors. Like causes will prove fatal to modern systems of government, and hence it is that we think the demagogue of the present day a more dangerous foe to the existence of this and all other governments than aggregations of capital. He incites to lawlessness, and almost daily we are called upon to read reports of the officers of the law set at defiance and the "wild justice of revenge" executed by the people. This, in our opinion, with disregard of religion and the laws of the Almighty, is much more likely to bring about the ruin of this republic than any evils likely to result from so called trusts. These can be easily set and kept in order by the abolition of protective tariffs. Let the "hoary headed infants" stand or fall on their merits or demerits in competition with the world and dangerous trusts will cease to trouble us.—ED.

HAY AND GRAIN CAPACITY.

8 x 8 x 8 or 512 cubic feet of space will hold one ton of hay. A mow 30 x 15 x 12 will hold 10½ tons. For corn in the crib multiply length, breadth and height, then divide the product by 2, and you have the bushels of shelled corn, dry, in your crib. Two cubic feet of sound dry corn in the ear will make a bushel of shelled corn.—*Exchange.*

VIRGINIA NEEDS TO PUT INTO PRACTICE A BETTER SYSTEM OF AGRICULTURE.

Editor Southern Planter:

Wherever the farmer persistently follows the system of soil depletion *versus* soil improvement, he not only injures his soil but robs the State and future generations also. This may seem to be a very broad statement to those who have not observed closely nor thought seriously upon the subject. We might ask the question, What could the State do if all the soil were worn, washed and gullied? But little grass could be grown for fine stock, population would decrease for want of proper sustenance, factories would not flourish nor mining prosper well. The necessary money to run the State Government could not be collected, our larger cities would be poorly fed. The farmer stands at the door of the great food supply house of the world, and feeds the nations day by day. But an engine cannot run without steam, however fine it may be; neither can a State flourish without a large amount of good food, however fine its code of laws may be. It is no new fact to those who have observed, to state that a large part of the tillable soil of Virginia is now practically worthless for agricultural purposes. Many times have the farmers grown crop after crop without giving the land rest or sowing some clover or grass crop till the cultivation of the soil ceased to be remunerative. The soil of Virginia has a history. The sons of Virginia delight to read it. Great battles of the nation have been fought upon the soil of Virginia. Great statesmen and heroes sleep beneath its sod. Other States have looked to Virginia to take the lead in the past. Will the Old State, in the future, have to "live largely upon fond recollections and deeds of the past?"

I am glad to state that here and there we find a man who is "keeping the faith." One has the best Shorthorn cattle; another has the best Southdown sheep; another the fastest horse; another the finest Albemarle pippins; another the best vineyard, "and last, but not least," one has the largest clover field.

As I have traveled across the State nearly every year during the past eight years to visit my farm in Southwest Virginia, I have been more forcibly impressed with the fact of the great need of soil improvement.

In a great many cases, the soil is not too far gone to grow clover. Green crops of rye could be turned under: loose straw or other material about the barns and in the fields could easily be spread over the washed places.

I find that it pays well in setting a field to grass or clover, to let the first crop go to seed and ripen before any stock are turned on to graze it. The seed that mature scatter over the ground and re-seed the vacant places. The straw that falls protects the young grass during winter, and the roots of the grass or clover become better established in the soil. Virginia farms, as a rule, need more clover, more grass, and less corn and fertilizer.

I am glad to note that the State Board of Agriculture will have more money to do better work this year, and also that the agricultural features of the State Agricultural and Mechanical College are improving. There is great room for both of these institutions to do much good work. The State needs it. While there has been much good work already done by both of these institutions, there is certainly need of a great deal more. As a citizen of the State, I would like to see these two branches of the agricultural system of the State be brought together and work in harmony for one common good. The same apparatus and the same buildings could be used and the two boards could meet together, consult each other, and work together.

Virginia has a "Farmer Governor," who is making a record for better agricultural and horticultural conditions in the State. And now, since both the agricultural departments of the State previously mentioned will have more money with which to work, we expect to see more work accomplished for the upbuilding of the State along agricultural lines. There has been good work done in the horticultural line, and the State is showing the influence of this work in many places, but even here there is great room for future improvement.

Let the State have less politics, less fertilizer, less soil depletion, and more clover, more peas, more grass, more orchards, more vineyards, more fat Shorthorns, more Southdowns, more dairies, more poultry, more truck farms, and more factories.

R. H. PRICE,

Texas Agri'l Experiment Station, College Station, Tex.

TIDEWATER NOTES.

Editor Southern Planter:

The damaging dry weather reported from nearly all portions of the State has somewhat reduced the yield of crops in Eastern Virginia in the trucking belt. Some of the early planted corn—planted in April and early May—has been cut short in yield, but as four-fifths of the corn here is planted after the early spring truck crops are taken off, and much of it follows the Irish potato crop, it is late, and therefore escaped material injury, as the rains of late date have brought things out in pretty good shape, although at this writing we are unable to say over how large an area this favorable condition of things exists.

The summer rains have been rather lighter than usual—in fact, considerably lighter than usual.

April gave us 4.43 inches of rain, falling on the 4th, 11th, 12th, 13th, 19th, 20th and 21st—rather light, but pretty well distributed. May gave us 2.74 inches, falling on the 1st, 3d, 4th, 6th, 7th, 9th, 10th, 18th, 19th, 20th, 24th, 25th and 26th—very short, but well distributed. The usual rainfall for May is 4.41 inches, as shown by the government weather reports for thirty years.

June gave us 2.52 inches of rain, falling on the 12th, 13th, 16th, 17th, 18th, 24th, 25th and 28th. The average rainfall for June for thirty years has been 4.27 inches.

July gave us 6.51 inches, falling on the 5th, 8th, 12th, 20th, 22d, 26th and 27th. The usual July rain fall for the past thirty years has been 6.01 inches. August is giving us a fair amount of rain, and the ground is in fair condition, not only for the growing crops but also for the new crops that are going into the ground now. The average August rainfall for thirty years has been 5.80 inches. The ground is now in excellent shape for planting and sowing all the regular farm and trucking crops. The fall crops of peas and beans (snaps) are now being planted, also kale and spinach.

The trucking season has not been a very prosperous one. Our people have raised a great supply of everything, but the markets have been unfavorable.

With our superior soil here, and our uniform and generally liberal supply of rain, and our special exemption from both late frosts in spring and early frosts in autumn, our people should not only be able to raise all the truck or market garden crops necessary, but they should also be able to grow all the staple regular farm crops.

The trucker who has worked hard all summer and has sold say 10,000 barrels of Irish potatoes, and say 40,000 packages of other vegetables, at a minimum profit—possibly no profit at all—now in many cases has to buy oats, corn, hay, pork, butter, lard, &c., for the ensuing year.

Such men will gravely tell us that the bottom has fallen out of business. Such business as they are engaged in never had a bottom to fall out. That is the trouble with tobacco farming in Virginia, with peanut farming, with truck farming. It has no basis, no bottom, no safety. Such special branches cannot be safely followed to the exclusion of other branches of farming. The farmer who enters into friendly copart nership with the family cow, the ewe lamb, and the spring pullet, will pull it through when the specialists go under.

Norfolk, Va. A. JEFFERS.

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

MEETING OF MUTUAL FARMERS' CLUB OF FREDERICK CO., VA.

The Mutual Farmers' Club met at Lost Stream, the residence of Wm. L. Bond & Son.

President Branson called the meeting to order at 10:45 A. M. Roll-call showed the following members absent: N. W. Solenberger, Edw. W. Lupton, and David P. Lupton. N. W. Solenberger came in later, and excuses were given for the absence of D. P. and E. W. Lupton.

The President appointed J. W. Branson, Jonah L. Rees, and Carroll C. Clevenger, a committee to select questions for next meeting.

The Club Advertiser was read by the Editor, Jonah L. Rees.

Criticism on N. W. Solenberger's farm was then read.

Selected questions were then taken up. The first question, What additional wages should a farm hand receive who boards himself? was answered by N. W. Solenberger, who thought five dollars ($5.00) a month extra should be paid to the man. Would always have a hand board himself if possible, as his wife has more spare time than the farmer's wife.

Samuel L. Pidgeon answered the next question. Will it pay in the early spring to run a land-roller over grass land intended for mowing?

Mr. Pidgeon would not advise using roller on grass land; he would advise picking up all stones, and having the ground well pulverized and leveled before grass seed was sown; then there will be no need for rolling.

The Club then adjourned to the dining room, where a bounteous dinner had been prepared by the hostess.

After viewing the farm of the host, the Club was again called to order.

There being no more referred questions, New Business was taken up. Under this head came the election of officers for the ensuing year. Election resulted as follows: President, Carroll C. Clevenger; Secretary, Edw. L. Irish; Treasurer, Howell McBond; and Editor, Levi M. Boyer.

Committee on Questions then reported as follows:

(1) Does it pay to use commercial fertilizers on grass land in spring where the crop is intended for hay?

Referred to Jonathan W. Branson.

(2) At present prices, would it not pay farmers to raise more hogs?

Referred to Hugh S. Lupton.

(3) Owing to the serious drouths of the last few years, will it pay to experiment with alfalfa?

Referred to Lewis Pidgeon.

Miscellaneous Business was then taken up. Under this head, L. M. Boyer read an article advising the

levying of a tax of ten cents a pound on oleomargerine colored as butter.

A lively discussion followed, in which the advantages and disadvantages of both sides were shown. It was brought out that oleomargerine could be made so much cheaper than butter, and so good an imitation that one could scarcely detect any difference, thus making it easy to sell oleomargerine for the genuine cow-butter, which is ruinous to the dairy business.

Mr. Clevenger, a visitor from Ohio, thought that the best way to get ahead of this fraud was a law that had been passed in that State compelling all sellers and consumers in public houses to have placards posted in conspicuous places, with the notice thereon that oleomargerine was sold or used there.

H. M. Bond asked what was the cause of so many dead limbs on apple trees. Some seemed to think it was caused by an insect, but there was no definite cause known.

The Club then adjourned to meet at Brierwood, the residence of L. M. Boyer.

EDW. L. IRISH,
August 25, 1900. *Secretary.*

THE CUINO, A CURIOUS CROSS.

In a recent letter to the *Gazette* in relation to the mule footed hog, I mentioned the cuino, the product of a cross between a ram and a sow. Requests for particulars as to this animal have been received, and I give them with pleasure. The information, however, must be very incomplete, I know, and unsatisfactory on many points, but I beg to be excused on account of the great difficulty of gathering data in this country, the inability of most people to give satisfactory explanations from want of knowledge or observation, and the lack of any attempt to experiment in any form.

The cuino (pronounced queeno) is not considered a special race of hogs, but a hog of any race which has been improved, refined, by the introduction of sheep's blood. I do not know if the cuino is bred in all Mexico, but he is to be met with all over this State, in the mountain districts as in the extensively cultivated valley of Oaxaca.

The ram used for crossing on sows belongs to the ordinary well-known, long-legged, light-bodied Mexican sheep. He must be polled, and if not he has to be dehorned for fear he should hurt the sows. No pains are spared in his training which begins at an early age; in fact, as soon as the lamb is weaned. When able to eat, he is taken away from his mother and the flock, and from that time forth has to live entirely in the company of hogs, never being allowed to see any of his own kind. He is pastured and fed with the drove of pigs and sleeps with them at night. With such an education and training he cannot but believe himself a pig as well, and, when the time comes, has no objection to serving the sows. When the sow is in heat he is shut up with her in a narrow pen and left as long as judged necessary. If he is slow in serving her he is given an aphrodisiac composed of roast maize and salt which always settles matters. This roast maize and salt is also used for this purpose in Mexico with other animals, like the jack, when slow in serving. The sow used to produce the cuino belongs to any race, but, as a rule, to the razor back, which is the more numerous. There is never any difficulty of her accepting the ram when breeding time comes.

The progeny is a pig—unmistakably a pig; he has the form and all the characteristics of the pig, but he is entirely different from his dam, if she is a razor-back. The sow in that case is, as you know, long legged, flat-ribbed, heavy boned, with an immensely long snout. She runs miles from the ranch, foraging in the bush, where she is too often the prey of the leopard or the puma. She can put away bushels of corn without any appreciable effect on her carcass; in fact, I need not describe her, she is well known in your Southern States. Her pig is entirely different; he is round-ribbed and blocky, his short legs cannot take him far away from his sty, and his snout is too short to root. His head is not unlike that of the Berkshire. His body is covered with long thick curly hair, not soft enough to be called wool, but which, nevertheless, he takes from his sire. His color is black, white, black and white or brown and white. He is a good grazer and is mostly fed on grass, with one or two ears of corn a day, and on that he fattens quickly. I have seen the litter of a mule-footed sow bred to a ram; her pigs were either single hoofed or cloven footed, about half of each kind.

The cuino reproduces itself, and is often crossed a second and third time to the ram. One of my neighbors, who breeds cuinos on his ranch, told me that it requires two or three introductions of ovine blood to produce a highly improved race of cuinos. I asked him if by breeding the cuino a number of times over again to a ram the progeny would not have more of the form and characteristics of the ram. He answered that the progeny would always be hogs. Then I made the objection that, in such a case, he might, after a number of crosses, have a hog practically a pure blood sheep. To that he made no answer, only laughed.

Be it what it may, the cuino is the most popular breed of hogs in this State of Oaxaca, and became so on account of his propensity to fatten with little food. In Mexico, where all the cooking is done with lard, a pig is killed for lard only, the meat being held of no account. This circumstance has made the popularity of the cuino, which gives the greatest amount of fat, in fact, has scarcely any lean meat at all. The Tamworth would not be appreciated in this country.

Perhaps you would like to know how a pig is disposed of in Mexico: After he has been killed and cleaned he is skinned, the entire layer of fat being taken with the skin. The lean meat, not looking very nice as you may think, is salted and the skin and fat, cut into pieces, is boiled down together with the inside fat in large earthen pots. When ready the hot lard is poured into old oil tins, the usual receptacles for it, and the crisp pieces of skin are collected with care, being considered, under the name of "chicharron," a great delicacy by the Mexicans. The other day an old woman killed a very fat cuino and told me afterwards that it had so little lean she thought the best way was to boil it all down—which she did—putting in the large pots hams, sides, head, tripe, and all.

I do not suppose any of the readers of *The Gazette* will ever want cuinos, having such excellent breeds of hogs, but they may like to know something about the ways of their Mexican neighbors and the extraordinary cross that produces the cuino.—Roger de la Debutrie, Huantla, Oaxaca, Mexico, in *The Breeders' Gazette*.

Secretary of Agriculture James Wilson, in speaking of the South the other day, among other things, said: "You need pastures more than any one thing I can think of; good pastures; drouth-resisting pastures; pastures that always have some plant at its best; pastures that last through winter; grasses that shade the soil from the sun in the summer, with legumes that feed the grasses from the air with nitrogen, that fill the soil with roots to enable it to resist drouth. When you solve the pasture question, the lands of the South will double their yields of crops of all kinds. The Department of Agriculture is bringing grasses and legumes from all lands under the sun to help in the solution of this question. Grasses for the rich bottom lands, for the thin hillsides, for the semi arid plains, for sandy soils and stiff clays, for drifting sands and rolling prairies, for sea beaches and river fronts—but especially for the pasture, for feeding the dairy cow and the meat producer."—*Exchange.*

What we need to complete our practical independence of the rest of the world is the discovery of a tin mine and a potash mine, to which may be added one other factor in production, unrelated to this specific subject and yet closely related to the food and fibre supply.

When the inhabitants of the upland cotton section of the Atlantic coast attain sufficient intelligence and power to suppress the yellow dog, of which it is related that "every poor man keeps two and every d—d poor man keeps four," that section may become the centre of wool production of the world, while the sheep fed with the nitrogenous cow pea vine and the fat producing cottonseed meal will renovate the slave stricken soils of these States and will bring them to the maximum production of food and of cotton and woollen fibres. EDWARD ATKINSON.

POULTRY NOTES

If you want to improve your flock, now is the time to do so. Breeders of fine poultry for exhibition purposes are now culling out the birds that for some probably trifling defect are ineligible for the show yard. These and all surplus stock they are usually glad to sell at reduced prices rather than carry them into winter. They are as good for the purpose of improving a flock not intended for exhibition purposes as the best.

Keep your turkeys and geese growing by not feeding too much corn. Wheat, oats and green food are better for growing purposes than corn. Corn should be fed to them freely in November and December to fit them for market.

A remarkable story comes to us of a year's work done by a couple of Bloomfield township children. Notwithstanding the fact that he is an invalid, T. J. Duncan rented 190 acres of wheat ground last fall, and his children, a girl 16 years of age, and a boy 14 years old, plowed the ground with riding plows; the girl harrowed it, and the boy followed with the drill. A man was hired to run the harvester, the children doing most of the balance of the work. The thrashing was completed yesterday, and the 190 acres yielded 4,000 bushels of 61-pound wheat.—*Beloit, Kansas, Gazette, July 26, 1900.*

Pea Vine Hay.

Will you let me know through your paper the proper way for curing pea vine hay in the green state; that is, just as it is cut.

Olga, N. C. W. M. CORBETT, JR.

There is no way to cure pea vines into hay just as soon as cut. The vines should be allowed to wilt for several hours in the hot sun and then be drawn into windrow and be put into cocks, and be left for 24 or 36 hours to partially cure. After the dew is off the cocks in the morning, open out and allow the sun and wind to dry off the moisture, and then, if the vines are so far cured as that no moisture will show on the outside of a hard twisted lock of the hay, the hay may be put into the barn with safety. It should be packed down tightly. It will heat very considerably, but will take no harm *if let alone.* If there be water in the hay from either rain or dew, it will not cure into good hay until the water is thoroughly dried out.—ED.

Plowing Land for Cotton and Corn in the Fall.

Please answer, through the *Planter*, if land intended for cotton and corn is deeply plowed in the fall, without a cover crop, would it be necessary to replow in the spring? Would not a good harrowing suffice?

Dorchester Co., S. C. A SUBSCRIBER.

It will depend on the nature of the land. If it is a heavy and level clay soil, it will run together and get hard during the winter rains. If it is the usual rolling red clay upland of the South, it will wash away its fertility rapidly if left bare in the winter, and a sandy soil will lose still more rapidly. Fall is the time to deep plow and subsoil a red clay soil, but we had far rather put off the plowing till spring than to leave the land bare in winter in your climate. Your land will lose more in the winter rains than it will in the summer cropping. On fall plowed land in the South a green cover crop is essential to retaining the nitrogen in the soil during the winter. A sandy soil might be prepared with the disc harrow in the spring, but fall plowing is in itself a bad thing for a sandy soil. Far better have the cover crop and replow in the spring. W. F. MASSEY.

THE

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PUBLISHERS' NOTES.

A Twentieth Century Offer.

We will send the Planter from receipt of subscription to the end of the year 1901 for 50 cents to all who are not now subscribers who will remit us that amount, thus giving them the rest of the current year free. We make this offer in order that we may set going a movement which we intend to follow up vigorously, and which we expect will result in our adding at least 5,000 new names to our list of subscribers in the first year of the New Century. We intend to make the new century the starting point of the most prosperous period in the life-history of the *Planter*. For over 60 years, the *Planter* has been a regular visitor to the homes of the most prosperous farmers of the South. We intend that it shall now go into the homes of *all* the farmers, so that they may *all* become prosperous. For 50 cents—one cent a week—any one can get it, and no one can say that he cannot afford to take it at that price. One old hen will pay for it twice over in the year besides keeping herself. There is no reason why it should not be in the hands of every farmer in the South, and if so, every farmer would, if he followed its advice, be a richer man every year. Let the boys have it, and learn what is the newest and best system of farming.

POLAND-CHINAS.

That veteran Poland-China breeder, J. B. Gray, Esq., of "Travellers' Rest," Fredericksburg, Va., is out with his usual card in this issue, offering some superior stock. He has recently added to his already fine lot of breeders, the splendid boar "Tecumseh G.," having purchased him from Messrs. Shallenberger & Cox, of Ohio. Parties desiring the best stock at right prices are invited to correspond with Mr. Gray.

A good mother, when her son was leaving the home of his childhood and going out into the great world, knowing that he was ambitious, gave him this parting injunction: "My son, remember that, though it is a good thing to be a great man, it is a great thing to be a good man."

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MAGAZINES.

"The Influence of the Western World on China" is the title of a timely article in the September *Century*, the writer being the Rev. D. Z. Sheffield, D. D., for thirty years a missionary in the Middle Kingdom. Dr. Sheffield sailed from San Francisco on June 22, having just learned of the burning of the North China College, of which he is President. The article, written shortly before his departure, is wholly apropos of the present situation, and it contains a powerful protest against any dismemberment of the Chinese Empire. One can learn much about the Boxers from a paper by R. Van Bergen, on "The Revolution in China and Its Causes." To this latest word on the civilization of to-day, contrast is afforded in Prof. Sterrett's account with photographic illustrations, of his visits to the cave-dwellers of Turkey in Asia, some of whose habitations date back nearly four thousand years; and primitive conditions are also described by John Burroughs in the second and concluding paper of his notes on the Harriman expedition to Alaska and Bering Sea, which included, as an after-thought, a two-hours' sojourn in Siberia. Mr. Morley brings us to the period of the military dictatorship in his life of Cromwell, and Sir Walter Besant's illustrated paper on East London is taken up with "The Thames from Wapping to Blackwall." To the second instalment of Bertha Runkle's historic romance, "The Helmet of Navarre," two spirited illustrations are furnished by Castaigne. The other fiction of the number, apart from Dr. Mitchell's "Dr. North and His Friends," is in the form of two short stories, one by John Luther Long—a pathetic tale called "The Prince of Illusion"—the other, a negro dialect story, "The Calling of Cairo," by Annie S. Winston. "In Lighter Vein," contains some amusing English signs from shops in Japan, contributed by the Rev. Francis E. Clark, President of the Society of Christian Endeavor.

Among the thirteen articles which make up the September issue of the *Forum* are many which, from the point of view of timeliness and interest, can hardly be beaten. Indeed, the *Forum*, though laboring under the disadvantages which attend every monthly magazine, manages to retain a great deal of that up-to date-iveness which is the happy endowment of a live daily. With China as a burning question in the September issue, we find Prof. Paul S. Reinsch considering the problem of "China against the World," and Mr. D. W. Stevens, Counsellor to the Japanese Legation at Washington, setting forth "Japan's Attitude Toward China." Turning homeward, and taking the Presidential campaign for *pabulum*, the reader has Mr. George E. Roberts' clear explanation of the meaning of "The Kansas City Financial Resolution," Mr. H. L. West's thorough, side-by side examination of the Republican and Democratic platforms, and Ex-Governor Stone's presentation of "The Campaign of 1900, from a Democratic Point of View."

Other articles of more general interest are Mr. W. W. Rockhill's authoritative account of "The Bureau of the American Republics;" Mr. Albert H. Washburn's "Plea for Consular Inspection;" Prof. Wilcox's explanation of "American Census Methods;" Mr. E. L. Johnson's eloquent advocacy of the cereal merits of the cotton-seed; Prof. Max Muller's criticism of "The Present Anti-English Feeling Among the Germans;" Mr. Walter B. Scaife's essay on "Work and Wages in France," and an enlightening article on "The Constitutional Crisis in Austria," by Dr. Maurice Baumfeld. Prof. W. P. Trent also contributes an appreciative criticism of Mr. Frederic Harrison's last book of essays.

In the September *Review of Reviews*, will be found a comprehensive treatment of the "Imperialism" issue, with particular reference to Mr. Bryan's Indianapolis speech. The editor's review of Mr. Bryan's Philippine propositions will be

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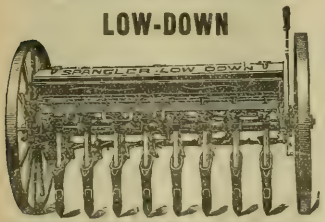
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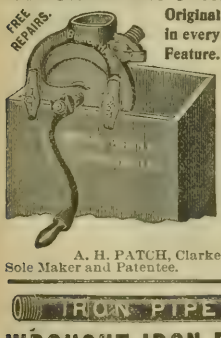
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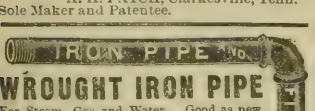
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read with interest alike by the adherents and the opponents of the Democratic candidate's policy.

"Can China be Saved?" is the title of an exhaustive article by Talcott Williams in the *Review of Reviews* for September. Mr. Williams possesses a rare fund of information on Oriental subjects, and he has a definite programme to offer for the solution of the world-problem in China. Taking as a model the Imperial Customs Service, so long and ably administered by Sir Robert Hart, Mr. Williams proposes to organize the Chinese Government in a system of commissions, under nominally Chinese control, but officered by Europeans, just as the customs service is now officered. The present Chinese civil-service machine would be retained, because it is suited to the temper and needs of the people. In the same magazine is an able defense of the missionaries in China by the Rev. Jas. S. Dennis, D. D., the author of "Christian Missions and Social Progress."

The September *New Lippincott* Magazine publishes complete one of the cleverest society novels of the year. It is called "The Dissemblers." The author, Thomas Cobb, is an Englishman who is much appreciated abroad, and his transatlantic success is likely to be repeated in America. So feelingly does he write about Penelope Darnley and her lovers that one feels a suspicion that he may have personated one of the lovers himself—but which one? The orphan, Penelope, is relegated to the tender mercies of a rather fast woman relative in London to await the return of the orphan's guardian from Calcutta. The reluctant hostess, whose waning charms suffer by contrast with those of her young guest, makes things difficult for Penelope, who, with true *fin de siècle* spirit, takes matters into her own hands and escapes in a way that is disconcerting to her friends. An amusing feature of the plot is a "nominal engagement." The guardian, Sir Gordon Darnley, who seems better able to control political affairs than to manage a woman, has his hands full, and finally surrenders.

Besides the complete novel there are short stories by Rev. Cyrus Townsend Brady, Cy Warman, and R. V. Risley.

"The Bishop and the Fool," by Mr. Brady, the favorite of old and young alike, is a missionary story of the West that is powerful and touching.

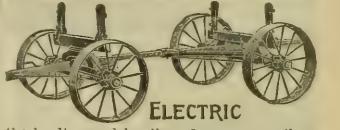
Everybody enjoys Cy Warman's railroad stories, and the one in the *New Lippincott* for September lacks none of the characteristics which makes him popular. It is called "Jack Farley's Flying Switch."

An important paper which should be read by every parent and teacher in the country is by Henry S. Pancoast. "Young America at the Gates of Literature" will help many to decide momentous questions which arise with each school season.

Mrs. Elizabeth B. Custer, widow of the famous Indian fighter, contributes to the September number of *St. Nicholas* a sketch of a boy nicknamed "The Kid," with nu-

Labor Saving Conveniences.

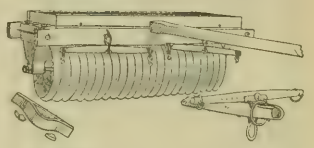
Success on the farm to-day is largely proportioned to the saving of time and labor—which means economy of production—and not higher prices for farm products. Probably no single machine or appliance saves in the aggregate so much time and hard labor as the modern low down handy wagon. Take for instance



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Barrel Stave Machine

With Jointer and Cut-off Saws, for sale. **Price; $250 00.** Been used but little, and is worth $600.00. Machine used for sawing oil barrel staves.

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4 Buggy Wheels with tire on, $7.25. With Axles Welded and Set, $11.00,



I make all sizes and grades with steel or rubber tire. Send for catalogue giving prices on wheels ¾ to 4 in. tread, with instructions for ordering. Rubber tire buggies, $65. Buggy tops, $5.90. Special grade wheels for repair work, $5.50, if you write to-day.

Freight Prepaid. **W. V. BOOB, Centre Hall, Pa.**



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Is warranted to make the worst kicking cow gentle to milk in two days. There is nothing equal to it for breaking nervous heifers. Agents wanted in every town. Illustrated circulars sent free. Address

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THE ONLY TOOLS YOU NEED.

We have on hand 2500 squares BRAND NEW STEEL ROOFING. Sheets either flat, corrugated or "V" crimped. Price per square of 10x10 feet or 100 square feet..... $1.75

No other tool than a hatchet or hammer is required to lay this roofing. We furnish with each order sufficient paint to cover, and nails to lay it, without additional charge.

Write for our free catalogue No. 166, of general merchandise bought by us at Sheriff's and Receiver's Sales.

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The "DAISY" BONE CUTTERS
The Best in the World.

"Gem" Clover Cutter. The $5 Shell and Corn Mill, Farm Feed Mills, Power Mills.

Send for Circular and Testimonials.

WILSON BROS., Easton, Pa.

merous anecdotes illustrating the traits that prove his kinship to an Indian fighting father. The lad grew up at an army post commanded by his father, and as a result of the Indian lore acquired in his hours of truancy, was able on one occasion to save the garrison from being surprised by hostiles. Interesting glimpses of the Paris Exposition are given in an article, by Grace W. Curran, devoted especially to the lighter aspects of the great show. The pedigree of the clothing of the present day is traced back to Assyrian times in a paper by George MacAdam, entitled "About Clothes."

"One Hundred Years in the White House," opening the September *Ladies' Home Journal*, gives some highly interesting glimpses of the social life of the century, and of the home life of our Presidents since the time the Adamses moved into the Executive Mansion as its first occupants, in November, 1800. The "Romances of Some Southern Homes," in the same issue, pictures the most notable historic mansions of the South, and recalls the incidents which made them famous—their brave men and beautiful women. Some new anecdotes attract further interest to the beloved Phillips Brooks, as a man and as a preacher. They are characteristic, and exceedingly well told. Anticipating the rather radical change that fashion has decreed in women's attire, ten special articles are devoted to the fall and winter modes. The pictorial features of the September *Journal* include a page drawing of "Loiterers at the Railroad Station," as A. B. Frost sees them; "The Wonders of California Gardens," and the beauties of Yellowstone Park. There are numerous practical articles and much else that is helpful in the departments. By The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

Harpers' Illustrated Weekly is full of spirited pictures of the events happening in China and the East, and the reading matter is always entertaining and instructive.

Harpers' Bazar is now one of the finest ladies' magazines published in this country. It is convenient in size and make-up, and the matter and illustrations are good.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Division of Entomology. Bulletin 25. Notes on the Mosquitoes of the United States.

Farmers' Bulletin 120. The Principal Insects Affecting the Tobacco Plant.

Crop Reporter, August, 1900.

Louisiana Experiment Station, Baton Rouge, La. Bulletin 61. Rice.

Maryland Experiment Station, College Park, Md. Bulletin 67. The Culture and Handling of Tobacco.

Michigan Experiment Station, Agricultural College, Mich. Bulletin 181. Soil Tests on Upland and Muck, Clover and Sand Lucerne. Notes. Wheat Improvements.

Bulletin 185. Fertilizer Analyses.

McCORMICK WINS AT PARIS.

The McCormick Harvesting Machine Company of Chicago, has been awarded the Grand Prize on Harvesting Machines at the Paris Exposition. This is the highest award.

The McCormick Company also received the highest award, a gold medal, on binder twine, for the superior quality of its product. Special twine machinery from the celebrated McCormick twine mill was exhibited to the jury and awarded a medal.

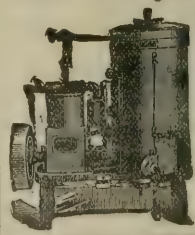
The McCormicks have received the largest number of awards, as well as the highest awards made to any American exhibitor. In addition to the Grand Prize on machines and Gold Medal on twine they have received two medals in the department of metallurgy for superiority in forming metals into special parts for machines; in the department of machinery a medal for factory machinery, and also silver and bronze medals in other classes, six medals in all, besides the Grand Prize.

The International juries of the Exposition have recognized the great revolution wrought by McCormick machines and this large number of awards is a great triumph for America.

In addition to winning these awards, the Gold Medal and 200 francs, the single highest award for binders, was won easily by the McCormick Binder at the field trial at Coulommiers on July 19, against all comers. This is the greatest and most important trial held in France during the Exposition year.

After Being on the Market TEN YEARS,

The ACME Engine Still Leads



For Churning, Cutting & Grinding Feed, Filling Silos, Sawing Wood, Elevating Water, and all Farm and General Uses where

Small Power is Required.

Fuel, Kerosene Oil.

No Skilled Engineer required.

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The Mietz & Weiss KEROSENE ENGINES



Cheapest and safest power known for pumping water, grinding corn, separating cream, sawing wood, and all power purposes. Send for catalogue.

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128 Mott Street,
New York.

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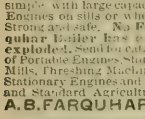


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SAW MILL
AND
AJAX CENTER CRANK **ENGINE**

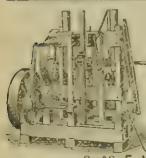


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A. B. FARQUHAR CO., Ltd., York, Pa.

BAILEY'S HYDRAULIC RAM.
Runs 24 hours a day and 365 days a year.
40 year's experience.
Water for House, Water for Stock. Water for Irrigation.

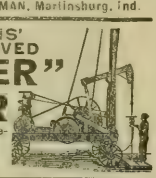


Once started costs one cent per month. As simple as a wheelbarrow and as efficient as a Corliss Engine. Information and instruction in plain terms. Prices on Ram or complete outfit by return mail. Address
PRYOR W. BAILEY,
EXPERT Seneca Falls, N. Y.



If YOU want a profitable investment buy
WYMAN'S UP-TO-DATE WELL-BORING MACHINE
It makes 150 or more drops of drill per minute and has more good points otherwise than all other makes of drills combined. Circular free.
CHAS. E. WYMAN, Marlinsburg, Ind.

USE LOOMIS' LATE IMPROVED
"CLIPPER" DRILLER
The result of 30 years' experience in Well Drilling.
LOOMIS & NYMAN, Tiffin, Ohio.



IMPERIAL Pulverizer, Clod Crusher and Roller.



Leads them all. Send for Circulars.
THE PETERSON MFG. CO., Kent, Ohio.

FRAZER
Axle Grease Best in the world.
Its wearing qualities are unsurpassed, actually outlasting 3 bxs. any other brand. Not affected by heat. Get the Genuine.
FOR SALE BY ALL DEALERS.



SILOS
HOW TO BUILD ASK
WILLIAMS MFG. CO., KALAMAZOO, MICH.

Minnesota Experiment Station, St. Anthony Park, Minn. Bulletin 68. Sub-Experiment Farms. Reports of Progress at Sub Stations.

Missouri Horticultural Society, L. A. Goodman, Secretary, West Port, Mo. Report of Condition of Apple Crop.

Rhode Island Experiment Station, Kingston, R. I. Bulletin 69. A Study of Plant Adaptations.

Virginia Weather Service, Richmond, Va. Report for July, 1900.

West Virginia Experiment Station, Morgantown, W. Va. Bulletin 66. Fruit Diseases and How to Treat Them.

Crawford's July Report on Strawberries for 1900. Published by M. Crawford & Co., Cuyahoga Falls, O.

"Sang" or Ginseng. Cultural directions by H. F. Kelsey, Boston, Mass.

CATALOGUES.

T. W. Wood & Sons, Richmond, Va. Seedsmen, Seeds and Bulbs for Fall Planting. This will be found a most useful Catalogue at this season of the year, as it contains full and complete information as to the various crops which can be planted on the farm and in the garden in the fall. It is especially explicit on the subject of winter forage crops, which are likely to be so much needed.

W. W. Bentley, Weldon, Pulaski Co., Va. Catalogue of Shorthorn cattle to be sold by auction at Weldon, September 12, 1900.

Osgood Scale Co., Binghamton, N. Y. Illustrated Catalogue of Scales. This company will send copy of this Catalogue to all who will write for it and refer to the *Southern Planter*.

The Meitz & Weiss Gas and Kerosene Engine manufactured by August Meitz, 128 Mott street, N. Y. This pamphlet describes it is engine fully.

Iowa Seed Co., Des Moines, Ia. Catalogue of Winter Wheat, Grass Seeds and Vegetable Seeds for fall and winter planting.

Keystone Manufacturing Co., Sterling Ill. Corn Husker and Fodder Shredder and Snapper.

McCORMICK VICTORIOUS IN FRANCE.

The McCormick Harvesting Machine Co., of Chicago, has just received word from Paris that the Gold Medal and 200 francs, the single highest award for binders, was won by the McCormick Machines at the field trial at Coulommiers on July 19, against all comers. This is the greatest and most important trial held in France during the Exposition year.

WIRE FENCING.

The Kansas Steel and Wire Works, Kansas City, Mo., are advertising their well known field and hog fencing. Send for circulars and prices.

SAN JOSE SCALE

And other insects can be controlled by using Good's Caustic Potash Soap. See adv. of Jas. Good, Philadelphia, Pa., elsewhere in this issue.

KEYSTONE CORN HUSKER —AND— FODDER SHREDDER
The first successful Husker built.
The most efficient Shredder.
This machine will add 20 per cent to the acreage of your farm, for it converts the entire corn plant into a salable product.
It husks the ears, delivering them into crib or wagon, while it shreds stalks, leaves, etc., into a fine soft fodder, readily eaten by all kinds of stock. Every machine equipped with our famous DOUBLE SPIRAL SHREDDER HEAD. Both machines show important new features. Sizes suitable for any purpose.
We make the largest and most complete line of corn machines on the market.
Write for catalogue.
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Sterling, Ill.





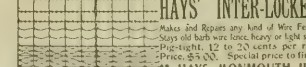
ORNAMENTAL FENCE!
25 different designs, they are all steel and cheaper than wood fence. Special prices to Churches and Cemeteries. Write us for catalogue
KOKOMO FENCE MCH. CO.,
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If You Want Wire
not made by a trust, you can get it at Page Fences.
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FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
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HAYS' INTER-LOCKER
Makes and Repairs any kind of Wire Fence. Will stay old barb wire fence, heavy or light stay. Pig-tight, 12 to 20 cents per rod. Price $5.00. Special price to first.
M. HAYS, MONMOUTH, ILL.

M. M. S. POULTRY FENCE
Half cost of netting; Requires few posts, no rails. Best Hog, Farm, Yard, Cemetery Fences. Freight paid
KANSAS STEEL & WIRE WORKS, KANSAS CITY, MO.

AGRICULTURAL • LIME
$1.00 PER TON.
FELLSWORTH LIME WORKS,
REEVES CATT, Agt., Bodley, Augusta Co., Va.
Also No. 1 Rock Lime for building. Send for card with price-list.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

DEDERICK'S HAY PRESSES

Address P. K. DEDERICK'S SONS, 59 Tivoli Street, Albany, N. Y.

Easy. Rapid. Strong.

The Dederick still leads all others.

BALE YOUR HAY

"ELI" BALING PRESS.

The Simplest, Strongest and Most Perfect Baler.

COLLINS PLOW CO. 1185 Hampshire St., QUINCY, ILL.

CHAMPION STEAM HORSE AND HAND POWER ALL STEEL OR WOOD AND STEEL **HAY PRESSES.**

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SPECIAL PRICES 30 Days' Trial Guaranteed. Double and Combination Beam **OSGOOD** SCALE CO. 137 Centralist. BINGHAMTON, N. Y.

Catalog Free. Write now.

WANTED A Working Farm Manager.

Must be sober and married His wife to be a butter maker. Write, giving references, stating salary expected, to

Box 555, Richmond, Va

Farm Manager Wanted

One who thoroughly understands raising and curing hay and attending to stock. Single man preferred. Address, giving references, to

Dr. C., care Southern Planter.

SMITHDEAL PRACTICAL BUSINESS COLLEGE ALEXANDRIA, VA.

For 33 years we have been training young men and women for business. Only bus. col. in Va. owning its building—a grand new one. Up to date. Highly endorsed. Thoroughly reliable. No vacations. Catalogue free.

D. Smithdeal, President.

"Leading bus. col. south Potomac river."—Phila. Stenographer.

Virginia Polytechnic Institute

(State Agricultural and Mechanical College)

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A Southern Institute of Technology.

Thirty instructors. Thoroughly equipped shops, laboratories, and infirmary. Farm of four hundred acres. Steam heating and electric lights in dormitories. Degree courses in Agriculture, Horticulture, Civil, Mechanical and Electrical Engineering, Applied Chemistry and General Science. Shorter courses in practical Agriculture and practical Mechanics.

Total cost of session of nine months, including tuition and other fees, board, washing, text-books, medical attendance, etc., about $185.00. Cost to State students, about $165.00. Next session begins September 21, 1900. For catalogue and other information, apply to J. M. McBRYDE, Ph. D., LL. D., Pres.

PAINT TALKS—XXXI.

MORAL ASPECT OF PAINT.

There is one aspect of the paint question that has not yet been touched upon in these articles. It is an aspect which, though intangible and indefinite, is nevertheless very important, since it has a bearing upon the question whether we are good or bad citizens.

Any one will readily admit that slovenliness, shiftlessness and carelessness indicate a lower mental and moral standard than the opposite qualities of neatness, orderliness and exactitude, but fewer persons realize the indirect influence of surroundings in developing one or the other set of qualities. Children brought up amid untidiness will naturally develop untidy habits, while to those accustomed to neatness in their surroundings, neatness will become a second nature.

Now, paint or the lack of paint, is one of the physical facts with which we are brought into intimate and constant association. Good, cheerful, clean, attractive paint implies so many other things that are good and thrifty that it is almost safe to say that the owners of a well-painted property are good neighbors, good citizens, and generally energetic, active, tidy and pleasant people; while the reverse may to a degree be inferred of people who are careless about paint. A slovenly condition of buildings as to paint implies a down-at-the-heels, shiftless way of running things in other respects.

The paint question, therefore, has a moral as well as an economic bearing. That it pays in pocket to keep a property well painted, no one that has considered the matter can doubt, but that it pays in moral results is not so readily perceived at first sight.

Here, then, are two cogent reasons for liberality in the use of paint. When it comes to the practical point of getting the best returns, tangible and intangible, for the money, it becomes a question of finding that paint which will relatively cost the least, look the best, and last the longest. The thrifty people of this country have pretty well settled that problem, as is shown by the growth of the combination paint industry.

This industry was made possible by the discovery of the paint properties of Zinc White fifty years or more ago. Before that date Nature did most of the painting for people in moderate circumstances. Lead was expensive and short-lived, and to keep his house looking neat was beyond the means of the ordinary citizen. Now there is no excuse for shabbiness; paints based on zinc white are cheap, beautiful and lasting, and only shiftlessness or ignorance can explain the want of good paint on a building.

STANTON DUDLEY.

SAW MILLS.

The De Loach Mill Manufacturing Co., Atlanta, Ga., is about the largest manufacturer of saw mills in the South. In another column will be found their advertisement. Get their catalogue.

Saw Mills, Four-horse power and larger, Shingle Mills, Planers, Edgers, Lath Mills, Grinding Mills, Water Wheels, Baling Presses, etc. Our Saw Mill cuts 2,000 feet per day with 4 h. p. Variable Friction Feed. Friction Set Works and Champion "X" Dogs; ahead of all others; the only saw Mill sold all over the world. Send for large catalogue and state just what is wanted. DE LOACH MILL MFG. CO., Box 66, Atlanta, Ga.

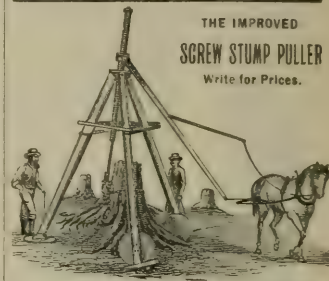
SAN JOSE SCALE and other insects can be controlled by using

Good's Caustic Potash Whale Oil Soap, No. 3.

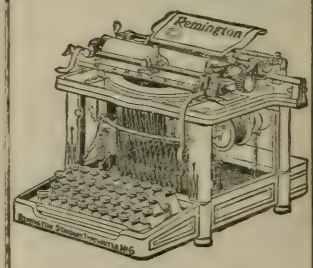
It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, $2.50; 100 lb. kegs, $4.50. Half barrels, 250 lbs., at 3½c. per lb.; barrels, 425 lbs., at 3½c. Large quantities, special rates. Send for circular.

JAMES GOOD, 939-41 N. Front St., PHILADELPHIA, PA.

THE IMPROVED **SCREW STUMP PULLER** Write for Prices.



Chamberlin Mfg. Co., Olean, N. Y., U. S. A.



This machine will work as no other typewriter works: more easily, more swiftly, longer and better; because it's a

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WYCKOFF, SEAMANS & BENEDICT, 327 Broadway, New York.

The Remington Standard Typewriter Co., RICHMOND, VIRGINIA.

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All prices and sizes. Free list on application.

WM. B. PIZZINI CO., Richmond, Va.

FINE FARMS in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address SAM'L B. WOODS, Charlottesville, Va.

VIRGINIA FARMS

$3 PER ACRE AND UPWARDS.

EASY PAYMENTS. CATALOGUE FREE.

GEO. E. CRAWFORD & CO., Richmond, Va.

Four Blue Grass Stock Farms

In Smyth, Washington, and Wythe Counties, Virginia. Fine for Grazing, Farming and Fruit Growing. For particulars, call on or write

GEO. W. RICHARDSON, Marion, Va.

FOR SALE! A NICE LITTLE HOME IN THE COUNTRY.

227 acres of land. Comfortable farm-house. Necessary out-buildings. Good orchard, garden, pastures, etc. Conveniently located, and pergectly healthy. Address at once

G. F. COX, IRWIN, VA.

FOR SALE A BEAUTIFUL HOME AND FARM . . . . .

In sight of Richmond, Va. Improvements first-class. Society, the best. Healthy. Big future. Address

OAK SHADE,

Care Southern Planter, Richmond, Va.

For Sale Farm of 100 Acres, Near Crewe, Va.

The Norfolk and Western Ry. has its shops at this point. House of 3 rooms, nice shade. One mile from town. Price, $850.

"BARGAIN," care So. Planter.

For Sale A RAPPAHANNOCK FARM 18 miles below Fredericksburg, containing 750 acres, 600 under cultivation or in grass, 400 fields, well watered and in good condition. Dwelling with 11 rooms; best water in yard; grounds and view very fine. Healthy. 8 acres in fruit. In a mile of two wharves, and in four hours run of Washington. Terms liberal.

W. R. TAYLOR, Comorn P. O., King George, Co., Va.

FOR SALE

Farm in Halifax Co., Va.

1½ miles from main line Southern Ry. 500 acres; 425 clear, 75 timber. Main dwelling, 7 rooms, frome, kitchen and out-houses, situated in grove. Mile from Scottsburg. 8 miles from So. Boston. Three schools in neighborhood; four churches. Land adapted principally to wheat, corn and tobacco. Good water. Price, $4,250. Apply to

W. W. WILLIAMSON, Danville, Va.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

THE MIETZ & WEISS PUMPING AND POWER ENGINE.

Doubtless there are many of our readers who have occasion to use a pumping engine, and who will therefore be interested in a brief description of the Mietz & Weiss engine for pumping and power purposes, using kerosene oil or gas, and manufactured by A. Mietz, No. 128 Mott street, New York city. The three sizes manufactured have an approximate capacity ranging from 500 to 2,000 gallons per hour, and the maker points out that the success of an engine getting into the hands of persons not familiar with the use of machinery is, in the first place, due to its automatic action. Its construction embodies the latest improvements, including the compression of the fuel, and the compression and the burning of the mixture of air and fuel. These, with the expulsion of the exhaust, are all performed at a single turn and in the most direct and simple manner. He has, in designing the pumping engine, placed the responsibility on its mechanism rather than on the user. A closed copper tank or oil receiver is firmly screwed to the cylinder and has a capacity to run the engine for ten hours. From this tank the kerosene is forced, by means of a small pump, directly into the cylinder, and there vaporized and mixed with air for combustion. The resulting pressure, acting directly on the piston, constitutes the driving force. Some of the other points the maker refers to are the enclosed crank-shaft, excluding dust and dirt, the absence of cams, valves and side shafts, doing away with all danger to inexperienced attendants, the rigidity of the crank-shaft bearings, the perfect lubrication, and the prevention of smell caused by leakage past piston, which is noticeable in open cylinder engines by a disagreeable odor, and cleanliness and silent and smooth running.

Kansas, in celebration of the fiftieth anniversary of her admission into the Union as a Territory, proposes to hold in 1904, at Topeka, her capital city, an inter-State Exposition, to which the world will be invited. A strong organization has been effected to plan and carry forward the undertaking, and the preliminary work has already vigorously begun. F. D. Coburn, secretary of the Kansas Board of Agriculture, is the present head of the directory, and Capt. H. M. Phillips, of Topeka, is the secretary having matters directly in charge. The promoters of the enterprise promise that Kansas, through this 1904 exposition, will reveal herself to the world in an attractive light hitherto little suspected by those who at a distance have unwittingly regarded her as merely a part of the wild and woolly West. An exposition showing the transformation wrought in this great agricultural empire in the half century, and of her attainments in that time, must perforce excite the wonder and admiration of civilization.

ANGORA GOATS.

An interesting pamphlet regarding them is advertised on outside cover of this issue.

ORGANIZED 1832.

THE VIRGINIA FIRE & MARINE Insurance Company.

RICHMOND, VA.

ASSETS, - $800,000.

DIRECTORS:

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WM. H. PALMER, - - President.
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"NORFOLK, VA."—Near the Sea.

There are cheap and beautiful homes in the "Sunny South," near the sea, and near that thriving seaport city, Norfolk, Va., for thousands of people who want happy homes in a mild, healthful, and delightful climate, a kind and productive soil, the very best markets in the world, the very lowest freight rates, good social, educational, and religious privileges, and the greatest number of other both natural and acquired advantages, to be found in any other one section of the Union.

The "CORNUCOPIA" tells you all about the beautiful section of country around Norfolk, Va. Send for (free) sample copies.

Address "CORNUCOPIA," 212 Main St., Norfolk, Va.

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Job Printing Neatly Executed.

S. B. ADKINS & CO.,

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Keeley Cure

For Drunkenness and Drug Using.

Please write us. Correspondence confidential.

Our Illustrated Handbook Sent Free On Request.

THE KEELEY INSTITUTE, Dept. F., Greensboro, N. C.

MINORCAS and HOUDONS. To save feed and room, I will sell during the early fall months pure cockerels and pullets at 75c. each, when shipped, and 50c. when called for. May have also a few Barred Rock cockerels. These prices for Sept. and Oct. only.

A. G. HILL, Huon P. O., Louisa Co., Va.

Barred P. Rocks

All sizes and ages.

Pit Games Cut prices to make room.

JOHNSON & GOODE, Boydton, Va.

FOR SALE—Best Strains

Barred Plymouth Rock

Cockerels and pullets at very low prices, if promptly taken. Satisfaction or money refunded.

W. C. NOWLIN, - Spout Spring, Va.

Cottage Poultry Yards.

Black Langshans

..EXCLUSIVELY..

Young stock now ready. Cockerels from $1.00. Trios not akin Price according to points. Eggs $1.00 per setting.

M. A. OLNEY, Coleman's Falls, Va

OLD DOMINION PROLIFIC LAYING STRAIN of

B. P. ROCKS and WHITE WYANDOTTES

Young stock ready for shipment September 1st. All stock gauranteed pure and bred for utility. Correspondence cheerfully answered.

Old Dominion Poultry Yards. J. H. SLEDD. Negro Arm, Va.

FOX-HOUNDS

Two litters Foxhound Puppies whelped in July. Best Virginia and Kentucky strains. Cheap. Address

W. Z. JOHNSTONE, Box 66, Lexington, Va.

A DEVON HERD..

Thoroughbred and a few grades. in good condition, about 10 head.

Cheap, if sold this month.

Come and see them

M. B. ROWE & CO, Fredericksburg, Va.

ROCK HILL FARM.

....Shorthorns, Poland-Chinas,

Also Rose Comb

Brown Leghorns.

B. B. BUCHANAN, Brownsburg, Va.

THE ACME ENGINE.

We invite the attention of our readers to the Rochester (N. Y.) Machine Tool Works' advertisement of their celebrated Acme Engine. This is one of the best Engines for farm power on the market. It is especially adapted for churning, cutting and grinding feed, filling silos, sawing wood and other uses requiring small power. Send for catalogues and other particulars.

DEDERICK STEEL FRAME FULL CIRCLE PRESS.

The old style box hay press, when it was invented by P. K. Dederick, practically revolutionized the hay trade. But a still greater revolution was effected by Mr Dederick's invention of the Perpetual or Continuous Baling Press, the first successful horizontal press, and the first to pack and complete a bale in charges with a reciprocating traverser. It produces a small compact bale, which takes up little room in a grain car, and consequently is economical in shipping, an advantage which every dealer and shipper readily appreciates. Mr. Dederick has invented a great variety of baling presses for every conceivable use with horse, steam or hand power, in steel cases or wood frames. The accompanying illustration shows the Dederick Steel Frame Full Circle Press, with an automatic feeder, which greatly lessens the labor of its operation. It has a record of pressing considerably over 2½ tons of hay in an hour. It makes bales from 85 to 175 pounds, and the bales are of such uniform smoothness and evenness that they invariably bring the top market price. It is a well-known fact that well-baled hay will always command a higher price than hay of even better quality, but roughly baled. The Dederick Baling Presses have been recognized as the leader for over a quarter of a century—a position which their manufacturers intend to maintain at all hazards. Their catalog is full of practical points on pressing. Send to P. K. Dederick's Sons, Albany, New York, for a free copy, mentioning this paper.



THE BOXERS OF CHINA

Are attempting to solve a gigantic problem, but they are going about it in the wrong way and will never succeed. Some people in this country seem to think that they have as great a puzzle on their hands in selecting a location for a home. They will certainly go about it in the wrong way unless they inspect the beautiful farming country on the line of the Chicago, Milwaukee and St. Paul Railway in Marinette Co., Wis., where the crops are of the best, work plenty, fine markets, excellent climate, pure, soft water; land sold cheap and on long time. Why rent a farm when you can buy one for less than you pay for rent? Address C. E. Rollins, Land Agent, 161 La Salle Street, Chicago, Ill.

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va.

WALTER WATSON.

BERKSHIRES I have for sale some extra fine [illegible] old BERKSHIRE BOAR PIGS, by "BILTMORE BOY," son of the unbeaten "KING LONGFELLOW," and out of XTRA sow. Sows. Entitled to registry in Am. Berk. Assn. Also SCOTCH COLLIE PUPS out of working stock.

R. S. CAMERON, WARE VIEW FARM, GLOUCESTER, VA.

THOMPSON & TRIMBLE, SWOOPE, AUGUSTA CO., VA.

Breeders **Shorthorn Cattle** and ..of.. **Shropshire Sheep.**

...CORRESPONDENCE SOLICITED.

ELLERSLIE FARM

Thoroughbred Horses

AND SHORTHORN CATTLE,

Pure Southdown Sheep and Berkshire Pigs.

For Sale R. J. HANCOCK & SON, Charlottesville, Va.

Choice Poland-Chinas

I offer 8 head of TOP POLAND-CHINA PIGS (4 sows and 4 boars) 4 months old, eligible to registry and strictly first-class, at $5.00 each, if taken soon. Order quick.

E. T. ROBINSON, Lexington, Va.

ESSEX PIGS

From registered stock of best strains. From famous Richard Peters' stock of Georgia. Ready for shipment by Oct. 1st. $10 per pair. Satisfaction guaranteed.

L. G. JONES. Bethania, N. C.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

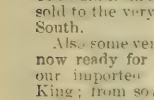
ASA B. GARDINER, Jr., Manager,
GLENCOE, MD

The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow

We mail a little "Book of the Herd" on request.

SWIFT CREEK STOCK AND DAIRY FARM.



$50 YOUNG THOROUGHBRED **JERSEY HEIFERS and BULLS.**

FOR SALE AT HARD PAN PRICES.

Blood of the famous **Stoke Pogis, St. Lambert and Coomassie** blended. Paying special attention to breeding my cattle, I have reached a degree of excellence not surpassed by any herd in the State. POLAND-CHINA Pigs always on hand. Write for what you want.

T. P. BRASWELL, Prop., Battleboro, N. C.

..We Offer a Fine Lot of..

JERSEY, GUERNSEY and DEVON CATTLE

FOR SALE.

BERKSHIRE pigs from registered sows, by boars direct from imported stock.

Barred Plymouth Rock, Brown Leghorn and Indian Game chickens now ready

M. B. ROWE & CO. Fredericksburg, Va.

FOR SALE.

DEVON BULL CALF (Jan'y) registered. HAMPSHIREDOWN Ram Lambs. BRONZE and WILD Turkeys. BLACK LANGSHANS. COL. DORKINGS, &c., &c.

INDIAN RUNNER DUCKS from first importation to U. S. in 1894 and four strains of imported blood since.

Box 16, Orange, Va. RORT. J. FARRER.

For Sale A Standard Bred and Registered STALLION, six years old, solid color, sound, sure, handsome. Weighs about 1250 lbs., and is elegantly bred. A grand animal. Special terms to a farmers' club.
"A," care Planter.

NEW FEATURES IN HUSKERS AND SHREDDERS.

The scarcity of hay in many sections this year has stimulated unusual interest in corn-husking and shredding machines.

As the first successful husker and shredder ever built was put on the market by the Keystone Manufacturing Co., of Sterling, Ill., and they still manufacture the largest lines of these machines in the world, we believe our readers will be interested in noting the principal features of 1900 "Keystone" models.

The shredding head of this machine forms a solid steel and iron cylinder, encircled by double spirals of saws. Being continuous from end to end, and cutting every part of the feeding space 2,000 times each minute, these steel saw blades effectually prevent any part of the cornstalks from passing through without being thoroughly shredded.

The shredded fodder passes over a separator screen, extending about half the length of the machine. Any shelled corn is thus sifted out, cleaned by a fan, and delivered into sacks.

A valuable labor-saving device is the new "Keystone" wind stacker for elevating the fodder. The carrier pipe of this "blower" can be quickly adjusted to any height without lowering or stopping the machine. It requires comparatively little power, for the fan always has a "straight" pipe to blow through. A slight turn at the upper end gives the pipe all necessary side adjustment.

The ears of corn are snapped from the stalks by the feed rolls which are made on their famous "sure grip" model, and travel 350 lineal feet a minute.

In the husking device long iron rollers, studded with screws, revolve together in pairs and form an inclined plane onto which the ears fall. The protruding heads of the screws catch the husks, pull them between the rollers, and rapidly tear them from the ears.

A wide range of adjustments makes this device very effective for good work regardless of conditions, and although quite simple, it gives the best results yet obtained by machinery in this field.

These Keystone machines, the result of fourteen years experience, are not burdened by unnecessary weight or useless devices, but are powerfully built of the best materials, and fully guaranteed. They are made in several sizes to fit any need, from a two-roll to the monster twelve-roll size.

A new illustrated catalogue of these huskers and shredders will be mailed free to any one requesting it.

"TAKE HEED WILL SURELY SPEED."

Be sure to heed the first symptoms of indigestion, nervousness and impure blood and thus avoid chronic dyspepsia, nervous prostration, and all the evils produced by bad blood. Hood's Sarsaparilla is your safeguard. It quickly sets the stomach right, strengthens and quiets the nerves, purifies, enriches and vitalizes the blood, and keeps up the health tone.

All liver ills are cured by Hood's Pills.

Satan trembles when he sees the weakest saint upon his knees.—Cowper.

Tamworth and Poland-China A few nice PIGS for sale of each kind, entitled to registration.

J. C. GRAVES, Barboursville, Va.

A BARGAIN FOR YOU!

I offer for sale "FREE COINAGE," a pure bred JERSEY BULL, 2½ years old. Parents great butter producers, testing over 500 lbs. butter per year. For further information, address

W. B. GATES,
Evergreen Stock Farm, Rice's Depot, Va.

BEING OVERSTOCKED, I offer thoroughbred

..POLAND-CHINA PIGS..

at $5.00 per pair, f. o. b. Fully guaranteed.

J. E. CATLIN, Greensboro, N. C.

..ESTABLISHED 1856..

The HAYFIELDS HERD of HEREFORDS

FOR SALE—Four Bulls from Six to Ten Months Old.

WM. D. MERRYMAN, - - Hockeysville, Md.

A BARGAIN

For sale a KENTUCKY SADDLE STALLION. As pretty as a picture. Ideal gentleman's saddle horse. A horse to win will attract attention anywhere. For photo., pedigree and full particulars, address

X91, Car of Southern Planter.

HARVEST KING WHEAT

FOR SALE.

80 cents per bushel, f. o. b, Rapidan, Va. Yield 25 bushels 3 years running.

Apply to EDGAR FREEMAN, Rapidan, Va.

FARMERS' LIBRARY!

SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
FERTILITY OF THE LAND,	$1.25
FEEDS AND FEEDING, -	$2.00
TOBACCO: How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

When you write to an advertiser, mention THE SOUTHERN PLANTER.

A SENSIBLE WOMAN.

A party of married men were talking about their wives, and it is worthy of note that every man was glad he had a wife and was anxious to tell of her good points.

"I never heard my wife swear but once," said one of them, when there seemed to be a lull in the praise-meeting.

All the others looked shocked. If any of them had ever heard their wives swear, they were not telling it, and they resented the frankness of the one man who was apparently betraying family secrets. But the man did not regard the bad impression he had created.

"And that," he continued in the same tone, "was away back yonder, thirty years or more ago, when the oil excitement in Pennsylvania agitated the whole country. I owned a farm up there that I had taken for a debt of a thousand dollars, not because it was worth that much, but because it was all I could get. My business was very small then, and a thousand dollars represented the bulk of my capital. I had been married five years, and my wife was the very best investment I had ever made. One day I received word that oil had been struck on the farm adjoining mine, and right away I proceeded to go crazy, just as everybody else did when oil showed up anywhere in their neighborhood. My wife showed signs, too, but she kept her wits about her. Inside of a week I began to get offers for my farm, and I got crazier every time there came an offer higher than the one before it. It went up like a balloon at first, until the figures got away up, and then the smaller bidders dropped out. At last an offer of a hundred thousand dollars came from the representatives of a company that I knew was worth two or three millions."

"'Let it go, John,' said my wife, when I told her of this offer.

"'I guess not,' said I; 'if it's worth a hundred thousand to them, it's worth a hundred thousand to me.'

"'I tell you to let it go,' said my wife, as firm as a post in the ground.

"'Not much,' said I. 'I'll get two hundred thousand.'

"She pulled down her apron with a jerk, a peculiarity of hers when she meant business.

"'You're getting a hundred times more for it than you gave,' said she, 'and you never expected to make a hundred thousand dollars in a hundred thousand years, and you know it.'

"'But I'll make a good deal more than that now,' I insisted, and started back to my desk to write a letter declining the offer.

She pulled down her apron with a jerk that made the strings crack.

"'John Martin,' said she, 'don't be a d—— fool!'

"And I wasn't," concluded the narrator, "for I accepted the hundred thousand dollar offer, and it was ninety thousand more than the company ever got off the farm, for the oil didn't seem to run that way."—*William J. Lampton, in September New Lippincott.*

A fool must now and then be right by chance.—Cowper.

The Prosperous Farmer

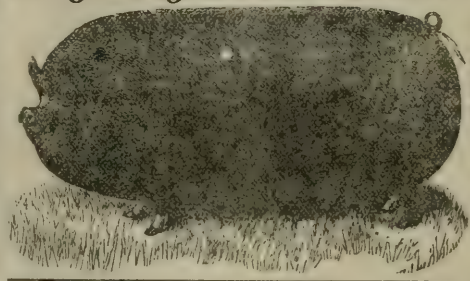
Farming is a science. To farm with profit, the farmer must thoroughly inform himself on the subject of fertilizers. If he does this, success is assured. Potash is essential to every crop.

We have valuable books telling all about the use of fertilizers and Potash which should be in the hands of every farmer. We gladly mail them FREE. A postal will do.

GERMAN KALI WORKS, 93 Nassau St., New York



Large English BERKSHIRES For Sale!



A number of high-bred Berkshires of both sexes, farrowed in April last, eligible to registration. Dams descendants of Biltmore Longfellow sow; sired by a Sir John Bull boar.

Prices very reasonable, from $5.00 to $8.00 each. Write to

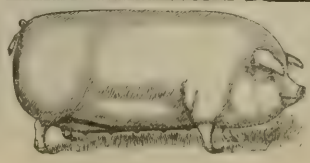
W. B. F. LEECH,
Oak Dale,
Rockbridge Co., Va.

My Corn Crop is Ruined

By drouth, I must sell HOGS at a sacrifice; so here goes:

32 PIGS, 10 to 12 weeks old, $4.00 to $5.00. **4 READY-FOR-SERVICE BOARS,** perfect pictures, at $10.00 each. **10 YOUNG SOWS,** served by my imported boar, at $10.00 each. **3 SECOND-LITTER SOWS,** at $15.00 to $20.00. Older and thoroughly tested sows at half value.

Fassafern Stock Farm. **THOS. S. WHITE, Lexington, Va.**



PLEASANT VIEW HERD OF IMPROVED REGISTERED **CHESTER WHITE SWINE.**

Both Pa. and O. strains. Can furnish pairs and trios not related. If you are interested in fine swine write me.

ARCHIE C. ROPER,
212 Lock Box, CHARLESTOWN, W VA

References: Bank of Charlestown, First National Bank, Southern Express Agt., U. S. Exp. Agt.

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the Annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

PRESERVING PEARS, PEACHES AND PLUMS.

To CAN PEARS.—Select fruit not overripe, and remove the skins by paring them. Cut pears into quarters, carefully removing every trace of the core, after which throw each quarter into a pan of cold water. This keeps the fruit from discoloring. Fill the cans with the fruit by pressing it in firmly, and allow eight ounces of sugar boiled into a syrup for each can. Add the syrup to each can; put on the covers, but not the rings, and place them in the wash boiler by first placing a board, with augur-holes bored through it, at the bottom of the boiler. Now fill the boiler with cold water nearly up to the necks of the cans, put on the boiler cover, and boil half an hour, counting from the time the water begins to boil. Remove from the boiler and fill any vacancy that appears with boiling water from the tea-kettle. Put on the rubbers, covers and rings, and screw down tightly. All canned fruit should be kept in a dark closet or closed up in a cupb ard in the cellar.

So universal was the custom of free entertainment that it was a law in Virginia that unless there had been a distinct agreement to pay for board and shelter, no pay could be collected from any guest, no matter how long he remained. In the few taverns that existed, the prices were low, about a shilling a dinner; and it was ordered that the meal must be wholesome and good.

The first book printed in the United States was an almanac at Cambridge in 1639, by Stephen Daye, who established the first printing press in this country. The second publication was a slip containing a poem entitled "The Freeman's Oath." The next book was a metrical version of the Psalms called the "Bay Psalm Book," in 1640. Copies are very rare. It is one of the most valuable books in the world.



HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

POLAND-CHINA HOGS.—Pigs, six weeks old, $4 50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.

Mr. C C. TALIAFERRO, Nasons, Va.: LAKOTA, May 30, 1900.

Dear Sir,—I generally keep from 150 to 200 sheep, but have never had any to shear as heavy fleeces as those that I purchased of you. I have out of one of your ewes a yearling that was clipped when four months old and was badly wintered, which clipped, when about sixteen months old, 14 lbs. of wool. I think, if it had not been sheared as a lamb and been well wintered, I would have gotten about 18 lbs. of wool from him. You can place my order this spring for two more lambs, which you have priced to me at very reasonable prices.

Yours respectfully,
C. B. CHILTON.

BACON HALL FARM.

"GOLD STANDARD,"
Related to Champion "Dale," heads Hereford herd.

DORSET SHEEP.
Ewe Lambs. Ewes bred for September.

BERKSHIRES—All registered stock.

Satisfaction, my motto. **E. M. GILLET, Verona, Baltimore Co., Md.**

EVOLUTION OF TOBACCO AS A SHEEP DIP.

It is within the recollection of many of the older tobacconists in this State when large shipments of tobacco left Virginia for Australia for the purpose of dipping sheep. Since then, owing to the immense increase in sheep raising, the manufacture of dips has become an extensive business, but notwithstanding the many preparations that have been put on the market, claiming to be the best on earth, tobacco has all along held a prominent place, until now it is recognized as the safest and best remedy. It has been recommended by our own government as well as by the governments of the leading sheep raising countries of the world. The other two remedies that have stood the test of time, are sulphur and carbolic acid, and a combination of tobacco or its products with sulphur and carbolic acid, is used to dip millions of sheep in every sheep raising country.

In our city we have one of the largest dip manufactories in the world—namely, Laidlaw, Mackill & Co. (Ltd.), whose works are situated on Williamsburg Avenue. They have been over thirty years in the business, and about five years ago they selected Richmond as the best place for making their products their object being to obtain supplies of those rich Virginia tobaccos which long experience had taught them to make the best dip in the world.

MAN'S SUPERIORITY.

One sees many curious phases of human nature in the safe deposit vaults of a banking institution—from the women who never by any chance know where their keys are, and go through bag and pocket book with reckless haste to the man who is not quite certain that he has locked his box and returns to the vault three or four times, puts his key in the lock, shakes it hard, and finally goes away convinced that "all is well." But in recent experience with a new customer to whom I was renting a box the climax was reached, when I handed him the keys and said:

"Now, here are two keys. Separate them so that if you lose one you will have the other to admit you."

He quickly replied:

"Very well. I will put one on my key-ring and lock the other up in my box."

And yet they tell us that men are more logical than women.—*John Hart, in the September New Lippincott.*

THE DIXIE PEA HARVESTER.

In another column in this issue will be found the advertisement of Messrs. Wm. Clore's Sons, Rising Sun, Ind., offering the Dixie Pea Harvester. They claim that this machine will harvest from 75 per cent. to 95 per cent. of all the ripe peas over a width of four feet. They also claim that it will pay for itself inside of three days in the saving of labor alone. Our readers should at once write its manufacturers for full description, price, etc.

Custom reconciles us to everything.—Burke.

GRAND PRIZE

PARIS EXPOSITION

The DE LAVAL "ALPHA" CREAM SEPARATORS have just been awarded the GRAND PRIZE at the Paris Exposition over a large number of separator exhibits from various countries.

Hill Top Stock Farm OFFERS FOR SALE ..... A LIMITED NUMBER OF

SOUTHDOWN and SHROPSHIRE SHEEP.

Some grand SHROPSHIRE lambs of either sex.

A GRAND LOT OF BERKSHIRE HOGS.

Young sows bred to elegant boars, and young boars ready for service.

Come and see our stock, or write for description and prices to

H. A. S. HAMILTON & CO., Staunton, Va.

Parties will be met at train with conveyance, if we are notified in time. We are always glad to show our stock.

URY STOCK FARM

HOLSTEIN-FRIESIAN CATTLE, rich in the blood of the greatest cows of the breed. A choice lot of **Young Bulls and Heifers,** sired by Ury Alwina Count Paul De Kol and Count De Kol Metchilde, from dams that are large producers. Our herd is larger than ever before, and we will name attractive prices to breeders desiring the richest breeding. The best is always cheapest. Write stating just what you want. Also PLYMOUTH ROCK CHICKENS. **THOS. FASSITT & SONS, Sylmar, Cecil County, Md.**

Grade SHROPSHIRE and SOUTHDOWN Sheep For Sale...

I offer 21 one and two-year old ewes at $3.50; 7 ewe lambs at $3.00 each. A bargain in these sheep at this price.

W. M. WATKINS, RANDOLPH, VA.

"THE WHEELS OF PROGRESS."

Now that a political campaign is on, we may expect to hear a good deal from the spell-binders of all parties about the "wheels of progress." One cannot always be sure what the political orator thinks he means, but if he is really interested in the "wheels of progress," we might take him into almost any farm yard and show him the real article.

We say "almost any" farm yard—because the use of the Handy low down farm wagon is becoming almost universal, and it is on these wagons that we find the real wheels of progress. The truth is that no progressive farmer is content now, to use one of the old high wheeled wagons when he can get a "Handy" for less money.

This is a question every farmer should consider before his fall hauling is on hand. One man with a "Handy" will do nearly as much work as two men with a high wagon, and the broad tires of the "Handy" prevents rutting, and roll easily over ground where a narrow tired wagon would mire.

The Handy wagon with broad tires has come to stay. The leaders in their manufacture is the Electric Wheel Co., of Quincy, Ill. They make also, low steel wheels, with any width tire, to fit any wagon. Send for descriptive catalogue and prices. You will be surprised to learn how cheaply you can get a set of wheels for your old wagon.

A CAT AND A COON.

"One of the strangest cases of animal friendship I ever laid eyes on," said a Bar onne Street business man, "may be seen at a big machine shop out on Bayou St. John.

"A few weeks ago the engineer caught a good-sized coon prowling about the loft. How the beast got there nobody knows, and at first he showed fight and plenty of it. However, the engineer is one of those men who seem to have a mysterious natural power over wild animals, and in a few days his prisoner was eating out of his hand, coming to his call, and going around loose, as tame as a dog.

"That would be sufficiently wonderful of itself, but it was nothing to the friendship that soon developed between the newcomer and Tom, the pet cat of the establishment. Tom is a monstrous black-and-white feline, and such a talented scrapper that he has frequently whipped full-grown dogs. The first time he met the coon there was a battle royal, which impartial spectators declare was a draw. At any rate, it must have given the pair a mutual respect for one another, for they immediately agreed to a protocol, and have since entered into a full treaty of peace, including an offensive and defensive alliance against all other cats or coons found on the premises. At present they sleep curled up in one furry ball, eat from the same dish, and play together like a couple of kittens.

"One of the coon's favorite tricks is to throw his paws around the cat's neck and make the latter drag him around the yard. It is a strange sight, and I could hardly believe my eyes when I first saw them. I pity any quadruped that attempts to tackle that combination."—*New Orleans Times-Democrat.*

THE FARMER ARMOUR .... THE FARMER

Feeds his stock and sends it to market. Slaughters and distributes the product all over the world. Takes back in the shape of ANIMAL FERTILIZER that portion not used in feeding, clothing, shoeing, harnessing, glueing, soaping, freezing and healing; nothing is wasted.

ARMOUR'S ANIMAL FERTILIZERS are scientifically prepared; their use insures large yields of cereals and grass. The RAW MATERIAL of which they are made IS GROWN BY THE AMERICAN FARMER AND IS THE BEST IN THE WORLD.

USE THESE FERTILIZERS ON YOUR WHEAT.

Send for Armour's Farm and Garden Library and Address of Nearest Agent.

THE ARMOUR FERTILIZER WORKS,
CHICAGO, ILL. BALTIMORE, MD. JACKSONVILLE, FLA.

Trade-Marks

"BLACKLEGINE."

"Pasteur Vaccine"

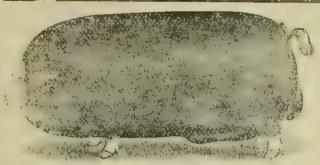
SAVES CATTLE FROM

BLACK LEG

Nearly 2,000,000 successfully treated in U. S. and Canada during the last 5 years. Cheap, safe and easy to use. Pamphlet with full particulars, official endorsements and testimonials sent **FREE** on application.

Pasteur Vaccine Co., Chicago.

BRANCHES: St. Paul, Kansas City, Omaha, Ft. Worth, San Francisco.



POLAND-CHINAS.

TECUMSEH G. VOL. XXII (22).

I have a large number of pigs by my fine young boars, "TECUMSEH G." and "MONARCH," and can furnish pairs not akin or related to them previously purchased. Sows in pig and young boars and sows of all ages. Send to headquarters and get the best from the oldest and largest herd of Poland-Chinas in this State at one-half Western prices. Address

J. B GRAY, Fredericksburg, Va.

FOR SALE

Highlands Stock and Poultry Farm ....



at a very low price and on good terms.
Choice **SHROPSHIRE SHEEP** and **Lambs.**
The best **POLAND-CHINA, BERKSHIRE** and **CHESTER PIGS.**
Can furnish extra fine **DURHAM** and **JERSEY CATTLE** at farmer's prices.
EGGS, B. P. Rock and Silver Wyandotte

If you want a good home in Virginia, or good stock and poultry, apply to the owner, **E. B. WILSON, Fancy Hill, Rockbridge Co., Va.**

When corresponding with advertisers, always mention The Southern Planter.

ANGLO-JAPANESE SIGNS.

A constant source of amusement to the traveler in Japan, says the Rev. Francis E. Clark in the September *Century*, are the Anglo-Japanese signs over the shop doors.

In the larger cities, many shop keepers have applied to a sign-painter who has acquired that dangerous thing, a little knowledge of English, without drinking deep at the Pierian spring, for a "shingle" that shall express to the world in Western characters the nature of their business. The assurance of these sign-painters is not matched by their familiarity with English spelling, construction, moods and tenses; and the result is often amusing in the extreme. For instance, one is amazed to see in Tokio a sign that boldly announces

A TAILOR CUT TO ORDER.

Another one informs us

PHOTOGRAPHER EXECUTED HERE.

A hatter in Kobe announces that he sells

GENERAL SORT STRAW HAT,

and another informs the public that he is a

DEALAR NEW ANDSTILISHSTRAWHAT WILL MAKE TO ORDER.

Some of the signs really seem to suggest needed English words, like

BUTCHERY AND PROVISIONS.

Why not "butchery?" Another tells us that he deals in

SOFT GOODS.

He does not mean "soft drinks," either, but soft woolen goods. A baker tells us that he keeps a

BAKETRY.

Another sign which I daily passed for nearly a week told the world that within dwelt

THE INVENTOR OF KOBE,

though what he invented, or when, or why, deponent saith not. A merchant in Osaka has hung out his shingle with superfluous articles, as follows:

PATENT THE CHARCOAL PATENT THE POCKET STOVE.

The conjunctions are almost as difficult for the average sign-painter to master. Consequently, he sometimes tells the world of a

HOUSE SHIP AND PAINTER,

or that within there is for sale

SHOTTINGAN POWDER AND.

A glance at the rifles, shot-guns and powder-horn within makes the sign plain. Another tells us that

BYCICLE TO LEND, SEL, AND

are within. It is not strange that single letters should get out of place, as in

RESTAURAND,
MEALS AT ALL HOUSE,
CIGARAND AND CIGARETTED,

and the like. But it does seem as if a wag with a keen sense of humor had

BILTMORE FARMS,
BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

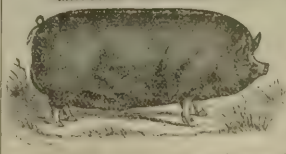
The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO **GEO. F. WESTON, SUPT.**

Registered Berkshires

"MAYOR OF BILTMORE" and "COUNTRY GENTLEMAN" at Head of My Herd.



I can furnish pigs from noted sows, "Eloise." "Bertha," "Miss Linwood," "Queen Quality" and "Queen Narka."

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.
Correspondence solicited,

Southern and N. & W. Rys. **T. O. SANDY, Burkeville, Va.**

PIGS

Some of the best bred in the United States at farmers' prices.

ARROWHEAD STOCK FARM, Charlottesville, Va.
S. B. WOODS, PROPRIETOR.

CHARTERED 1870.

Merchants National Bank

OF RICHMOND, VA.

Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.
Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

Capital Stock, $200,000
Surplus and Profits, $330,000

JNO. P. BRANCH, President. JNO. K. BRANCH, Vice-President. JOHN F. GLENN, Cashier.

DIRECTORS.—John P. Branch, B. B. Munford, Chas. S. Stringfellow, Thos. B. Scott, B. W Branch, Fred. W. Scott, Jas. H. Dooley, Jno. K. Branch, A. S. Buford, R. C. Morton, Andrew Pizzini, Jr., J. P. George.



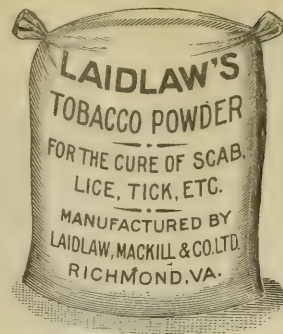
Thistle Brand.

LAIDLAW'S

Extract of Pure Tobacco.

..SHEEP DIP AND CATTLE WASH..

Put up in 1 lb., 7lb. and 14 lb. tins. **Price, 30 cents per pound, free on cars Richmond.**



LAIDLAW'S

Tobacco Powder

SHEEP DIP AND CATTLE WASH.

Put up in 5, 10, 50 and 100 lb. bags.

Price, 10c. per lb.

Sure and speedy remedies for SCAB, TICK, LICE and all the various forms of Vermin that infest live stock.

Nicotine dips are fast gaining in favor with the farmer and are coming to be recognized as the only really effective eradicators of vermin on all stock.

READ WHAT THE FOLLOWING SAY ABOUT THEM.

Mr. A. C. BROWNE, of Centre Cross, Essex Co., Va., writes:

I have pleasure in testifying to the efficacy of your pure Tobacco Extract and Sheep Dip Powder for cleansing cattle of lice. I used both of them on a herd of young calves, and also on old stock that were very badly infected with lice, and after one application they were freed of all the vermin. I feel sure in saying that from the action of it on cattle, that it will destroy vermin on any kind of stock, and I can strongly recommend it to all farmers who have lice or other vermin on their stock, and wish to get them into a good healthy condition.

Mr. K. H. CORNWALL, Wilton, Va., writes:

After trying your Tobacco Extract on my flock of sheep and Angora goats, I have pleasure in stating that it eradicated all vermin, and I consider it a very sure cure for lice, and all vermin on sheep, goats and hogs. I can strongly recommend it to all farmers who have vermin on their stock.

Mr. FRANK H. HILL, of Victoria, North Carolina, writes:

I find that for lice on cattle it is beyond doubt the best remedy I have ever tried, as also for sheep ticks. I have not yet had sufficient time to test its efficacy for scab on sheep, but am sure it is equally good for that also.

We ask you to give it a trial and feel sure you will not be disappointed. Manufactured by

LAIDLAW, MACKILL & CO., Ltd., 3400 to 3500 Williamsburg Ave., RICHMOND, VA.

been at work when we read, as we do in a prominent street of Osaka:

ER-MAN-WASH.

Put the last syllable first, and you will catch the thought. A wag, too, must have prepared the label for a dealer in borax, who, after extolling the purity and value of his preparation, put in large letters at the bottom:

BEWARE OUR TRADEMARK.

Perhaps the most startling milk sign in Japan is:

COWS MILKED AND RETAILED,

which, if I mistake not, is to be found in Kioto. Cloth-dealers also have had not a little difficulty in making known their wares. Here is one of their signs:

SILK HEMP, COTTON AND SEVERAL HAIRS SEVERAL KINDS YARN

REAL ESTATE, LONE AND CORRECTING AGENCY

appears in Tokio, a place, perhaps, for bad boys and girls.

Public signs and notices are often as amusing as the shop signs. For instance, one that appears on the way up the famous Bluff at Yokohama:

IT IS FORBIDDEN TO THROW THE STONE A MAN IS BEING WOUNDED.

Probably in some past year a stone thrown over the bank hit a passer-by,



Elmwood Nurseries.

We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.



APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,

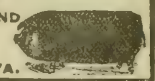
QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.



POLAND CHINA PIGS.

BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.

WRITE FOR DESCRIPTIVE CATALOGUE.



J. B. WATKINS & BRO.,
HALLSBORO', CHESTERFIELD CO., VA.

SEED WHEAT

ECLIPSE Red bearded wheat; very hardy; strong grower; extra broad leaf; yielding 40 bushels per acre with proper cultivation. Price, $1.25 per bushel; 10 bushels, $10 00.

DIAMOND GRIT A red, short berry variety; bearded. With the exception of beards, it is the Fultz reproduced. Outyields any other wheat. We raised 20 bushels from 1 bushel of seed sown in November, a month later than the regular season. Price, $1.50 per bushel; 5 bushels, $6.00.

Bags for each variety, 12 cents each. Order promptly as our supply is limited

BOWMONT FARMS, SALEM, VA.

but the man is still being wounded. At a temple door we read:

ALL VISITOR ARE NOT ALLOW TO ENTER THIS TEMPLE PUTTING ON THEIR SHOE.

Hence of course we took off our shoe. I copied the following from a poster on the side of a house in a little fishing village on the shore of the Inland Sea:

TO LET GRAUND IN BEACH WHEN IF YOU LIKE I WILL DID AWAY FROM STREET AND WILL TAKEN DIRTY COTTAGE.

On mature deliberation of several savants, it was decided that the owner meant to say that if we rented his lot on the beach he would move his house from the street, and also take away the "dirty cottage," that now encumbered his ground.

WILLIAM TO HIS WAITERS.

The German emperor does many things which do not get reported in the English papers. A short time ago, for instance, he gathered around him in his palace a group of men to whom he gave admonitions the most fatherly, a commission the most inspiring. They were going forth, these sons of fatherland, and in their hands lay the honor of Germany—in theirs, to whom he knew he could entrust it. And these men, who took their commission from their emperor, were—the waiters going forth to the German section of the Paris Exposition! The episode is one to ponder over; and the sequel is that the best behaved band of waiters at the Paris show is, by general consent, the German.—*London Chronicle.*

HIS OWN SENTRY.

The Dutch commandant who had charge of all the British prisoners taken after the battles of Glencoe, Dundee and Nicholson's Nek has told Mr. Davitt the following interesting little story: Going his rounds at midnight on one occasion, he was astounded to see an English soldier acting as Boer sentinel over the prisoners, and, on the commandant demanding an explanation, "Tommy" offered the following extraordinary account of his transformation from a prisoner to sentinel over himself and fellow-prisoners: "Well, sir, this 'ere poor little chap," pointing to the sleeping form of a Boer lad fifteen years old, "was dead broke for sleep after two nights of duty. I takes pity on the little chap, and I says, 'Look 'ere, you're regular done up, you are, that's sartin. You give me your rifle and take a bit o' sleep, and I'll do sentry go for you, I will. Honor bright! I won't do nothink wrong; blow me if I do." So the little chap went off. It's all right, sir; don't you blime him, please; he is only a kid!" "I was assured," adds Mr. Davitt, "that neither 'the kid' nor the kind-hearted English prisoner suffered over the unique incident."—*London Star.*

STOCK LABELS.

Messrs. F. H. Jackson & Co., Winchester, Ky., are advertising elsewhere in this issue their well known "Kentucky stock labels," used for marking cattle, sheep, hogs and poultry.

Be Fair with Your Fields

and they will be fair with you..... Listen a moment.



Every time you take a crop from a field you relieve it of just so much fertility. You should do something to restore that fertility. Barnyard manure is the best fertility restorative known if properly handled and properly applied. Even a small amount can be made to go a long way and accomplish great good if finely and evenly spread. This cannot be successfully done by hand—it is work for a perfected machine. The only machines known which accomplishes this is

The KEMP MANURE SPREADER.

It will Double and Treble the Value of the Manure Heap.

It spreads all kinds of fine and coarse manure evenly; it makes no "skips," does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and makes it fine. Better than anybody can do it by hand. Spreads lime, wood ashes, salt, etc., equally well. With the drill attachment it puts the manure direct into the open drill. Made in three convenient sizes. Ask the opinion of anybody that uses one. Write for illustrated catalogue.

Kemp & Burpee Mfg. Co., Box 28, Syracuse, N. Y.

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

..AGENTS WANTED..

FRANKLIN DAVIS NURSERY CO., Baltimore, Md.

The Cyclone Grubber

ONLY $3.00.



It is one of the handiest tools on the farm. Can be operated by one or two men. Made of solid steel and will last a lifetime. It takes up roots and branches thoroughly. Unequalled for grubbing out fence corners. Agents wanted. Circular free.

J. G. O'DONNELL, Patentee,
Leon, Madison Co., Va.

Clubbing List for 1900.

The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever journal you wish.

	PRICE ALONE	WITH PLANTER
DAILIES.		
The Dispatch, Richmond, Va	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harpers' Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar,	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeders' Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harpers' "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 25
Cosmopolitan "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan, "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish *no sample copies* of other periodicals.

Seed House of the South.

RED CLOVER.
MAMMOTH CLOVER.
CRIMSON CLOVER.
WHITE CLOVER.
LUCERNE CLOVER.
ALSYKE CLOVER.
BOKHARA CLOVER.
JAPAN CLOVER.
BUR CLOVER.



TIMOTHY
ORCHARD GRASS.
RED TOP OR HERDS GRASS
KENTUCKY BLUE GRASS
RANDALL GRASS.
TALL MEADOW OAT GRASS
JOHNSON GRASS.
GERMAN MILLET.
BUCKWHEAT
OATS and
CANE SEED

"Whatsoever One Soweth, That Shall He Reap."

We sell strictly reliable FIELD AND GARDEN SEEDS of every variety at Lowest Market Rates, included in which are RAGLAND'S PEDIGREE TOBACCO SEEDS.

WE ALSO SELL

Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods Samples sent by mail when desired.

Wm. A. Miller & Son, 1016 Main Street LYNCHBURG, VA.



Japan Plums

And all other desirable standard and new varieties of PLUMS, APPLE, PEACH, PEAR and ORNAMENTAL TREES, SHRUBS, ROSES, Etc.

HEADQUARTERS FOR TENNESSEE PROLIFIC STRAWBERRY.

The Most Reliable Variety Ever Grown in the South.

Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogues free.

AGENTS WANTED. WRITE FOR TERMS.

W. T. HOOD & CO.

OLD DOMINION NURSERY. RICHMOND, VA.

LEFT-OVER MEATS.

Albuminous foods, such as meat, eggs and milk, are more easily digested raw or rare than when well cooked. This makes the second as well as the first cooking of meats a subject of great importance. All over-stewed hashes are exceedingly objectionable. Ragouts, boudins, Breslau—in fact all methods not requiring frying, that will simply and quickly reheat, not overcook the meats, are to be preferred. In warm weather, curries are desirable; in cold weather, croquettes, rissoles or cecils may be occasionally used. For all these dishes the meat should be chopped fine, preferably through a meat-chopper or an ordinary grinder. In England, where servants are thoroughly trained to economize, the little pieces of meat that lie between the bones of the carcasses of chickens, the left-over pieces of turkeys or ducks, are pounded, seasoned and packed into little cups; covered with melted suet, and placed aside to be used as luncheon dishes, under the names of potted or devilled meats. Even as small a quantity as a cupful is packed down and used to help out when other materials are unavailable or an unexpected guest arrives.

All bones, such as the carcasses of chickens, turkeys and ducks, with the bones from roasts and steaks, and the liquors in which meats are boiled, should be carefully saved for stock. It is not a good plan to have a continuous stock pot; but twice a week, say on Tuesdays and Saturdays, the bones which have accumulated may be covered with cold water; simmered gently for three hours; strained, and put aside for future use. This stock may be used for all the ordinary soups, and for the liquid portions of all meat sauces as well.

POTTING MEAT, TONGUE AND CHICKEN.—Any left-over pieces of cold meat may be chopped very fine, rubbed to a paste either with the back of a spoon in a bowl, or in an ordinary mortar; adding to each half pint an eighth of a teaspoonful of powdered mace and two ounces of melted butter; season lightly with salt, and pack into a cup or tumbler. Pour over a little melted suet and stand aside. This will keep for a week or ten days. Tongue, chicken and baked liver are among the best meats for potting.

MEAT BALLS AND RISSOLES.—Chop sufficient cold roast beef to make one pint; mix with it a half a pint of stale bread crumbs, a tablespoonful of chopped parsley, half a teaspoonful of the grated rind of a lemon, a teaspoonful of salt, and two whole eggs slightly beaten. Divide into balls about the size of an English walnut. Beat one egg until well mixed; add half a cupful of milk, and stir this carefully into half a cupful of flour; strain, to make sure that you have it perfectly smooth. Drop the meat balls into this batter, and then into smoking hot fat; drain on brown paper and send at once to the table. Beef rissoles may be served plain or with tomato or brown sauce.

PEPPERS STUFFED WITH MEAT.—The sweet garden peppers form one of the nicest receptacles for the use of cold meats. Beef, mutton, chicken, turkey or duck, with cold boiled rice or bread



..THE..

IMPLEMENT COMPANY,

1302-1304 E. Main St., RICHMOND, VA.

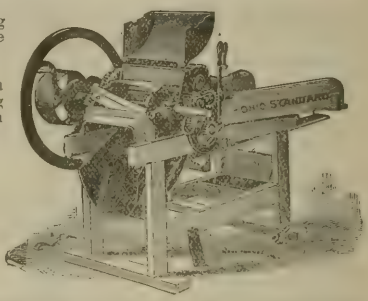
..Manufacturers and Dealers..

We are just building and finishing seven car-loads of stylish and reliable

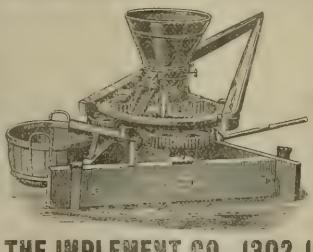
Buggies and Carriages.

These we are placing on exhibition in our show rooms, and are offering these guaranteed vehicles at bottom prices.





Call and see our stock. We will send illustrations and price list free to all applicants.



The Ohio Feed and Ensilage Cutter

For hand or power with or without carrier, is by far the simplest and strongest on the market.

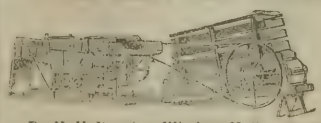
Ideal Feed Mill and Power Combined

For grinding corn and cob as well as shelled grain.

Crown Grain Drills, Cane Mills, Evaporators, all kinds of **Agricultural Implements, Wire, Pumps, Well Fixtures, Harness, Etc.** Write for catalogue and special low prices.

THE IMPLEMENT CO., 1302-1304 E. Main St., Richmond, Va.

"LITTLE GIANT" and "PENNSYLVANIA" PEANUT PICKERS.



The "Little Giant" and "Pennsylvania" were the first successful Peanut Pickers. They were leaders in 1899. Have added improvements for 1900. No other machines so strong and durable, do the work so well or so rapidly, require so little power to drive them, or are so easily and quickly adjusted to the various requirements in successful operation. Will thresh Wheat, Oats, Rice, etc.

Dr. H. V. Dunstan, Windsor, N. C., averages 300 bushels per day with smallest machine—the Pennsylvania. Some who do custom work have bought the second and third machine. Men who have the time, and the means to equip themselves, make more money "pulling Peanuts" than in any other work. We have small machines for individual work on plantation or large machines for those who wish to do custom work.

"The day is near when there will not be a hand-picked peanut in Virginia, save only for seed," writes a customer who is operating three of our outfits in Sussex county.

For free catalogue, prices, terms, etc, address

STRATTON & BRAGG,

Hardware, Machinery and Engines,

Manufacturers Agts. for Southeastern Virginia and Northeastern N. C.

PETERSBURG, VA.

crumbs may be used. Chop the meat fine; mix with it an equal quantity of rice or bread crumbs. Peel, cut into halves, and press out the seeds from four good-sized tomatoes; chop fine and mix with the meat and rice, adding one chopped onion and a teaspoonful of salt. Remove the tops and seeds from the peppers, then scald and wash them. Fill with the meat mixture, and stand in a baking-pan; add half a cupful of stock or water, two tablespoonfuls of butter, and bake in a slow oven for one hour, basting quite frequently.

RAGOUT FROM COLD MEAT.—A good ragout may be made by cutting sufficient cold cooked meat into cubes of one inch to make one pint. Put one tablespoonful of butter and one of flour into a saucepan; mix, and add half a pint of stock; stir until boiling; add half a teaspoonful of salt, a dash of pepper, a teaspoonful of browning or kitchen bouquet; add the meat; heat quickly and serve. Olives and mustards may be added if desired.

CROQUETTES.—The recipe given below will answer for all meat croquettes, keeping the proportions exactly the same and changing the seasoning to suit the meat. Chop sufficient cold cooked meat to make one pint. Put half a pint of milk over the fire; rub together one tablespoonful of butter and two of flour; add to the milk and stir until thick and smooth. Season the meat with a teaspoonful of salt, a dash of pepper, a teaspoonful of onion juice, and a tablespoonful of chopped parsley. Add, if you like, a little celery seed. Mix the meat with the paste and stand aside to cool. When cold, form into croquettes, dip into egg, and roll in breadcrumbs, and fry in smoking-hot fat, 365° Fahrenheit. The quantities given will make seven croquettes, which may be served plain, with tomato sauce or peas.—*Mrs. Rorer, in Ladies' Home Journal.*

When you need medicine you should get the best that money can buy, and experience proves this to be Hood's Sarsaparilla.

THE "BLACK HAWK" CORN SHELLER.

This very handy Sheller is advertised elsewhere in this issue by Mr A. H. Patch, Clarksville, Tenn. See adv.

GEMS OF THOUGHT.

Gentle of speech, beneficent of mind.—Pope.

He's armed without that's innocence within.—Pope.

Praise undeserved is scandal in disguise—Pope.

The true use of speech is not so much to express our wants as to conceal them.—Goldsmith.

He that wrestles with us strengthens our nerves and sharpens our skill. Our antagonist is our helper.—Burke.

If we would learn patience, there is no school but in experiences that require us to exercise patience.—Westminster Teacher.

When bad men combine, the good must associate; else they will fall one by one an unpitied sacrifice in a contemptible struggle.—Burke.

The ELLIS CHAMPION
Grain and Peanut Threshers.

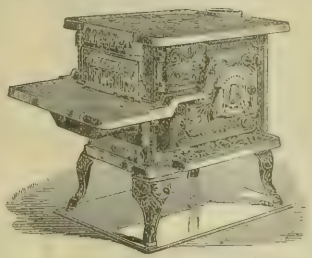


The **ELLIS CHAMPION** has built up its own enviable reputation by the quantity and quality of its work, and the durability and simplicity of its construction.

Mr. Otto Gericke and Mr. Limon Myers, of Dinwiddie, averaged 375 bushels per day for several days with the smallest machine. Mr. Luther Spiers, of Sussex Va., who has bought three of the largest size to do custom work with, says he has used other makes of grain and peanut threshers, and finds that none can do as much and as good work as the ELLIS, and at such a small cost for repairs. For free catalogues, prices, terms, etc, address

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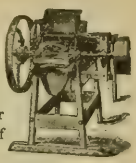
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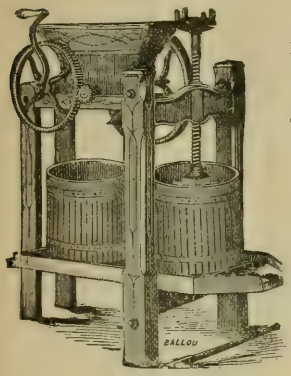
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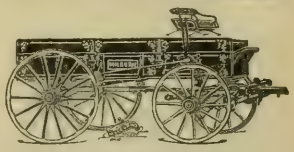
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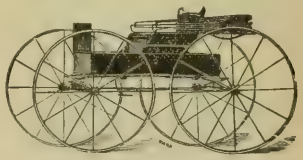
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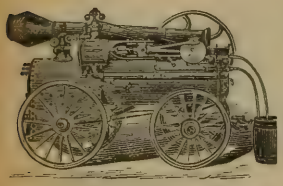
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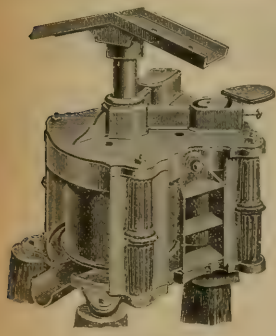
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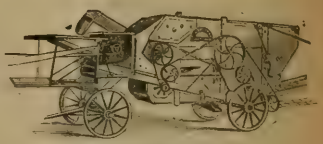
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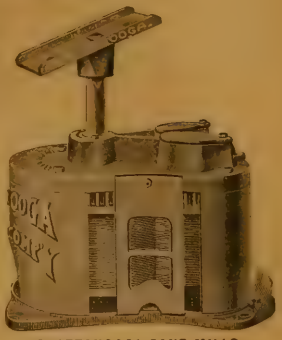
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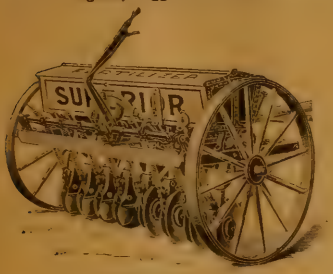
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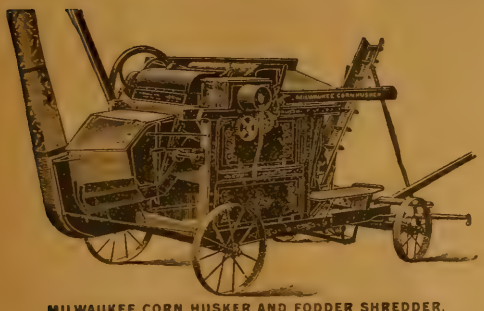
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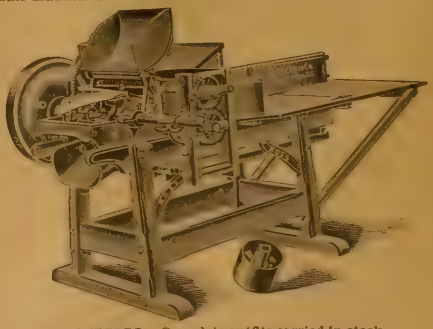
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Vol. 61. OCTOBER, 1900. No. 10.

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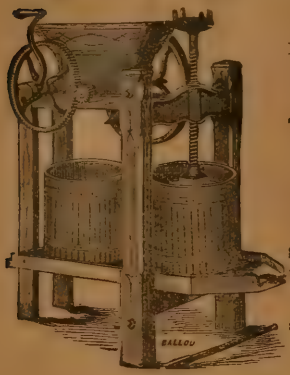
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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, October, 1900. No. 10.

Farm Management.

WORK FOR THE MONTH.

Whilst there has been some relief experienced in the drouth-stricken sections of the South since we wrote our article on "Work for the Month" a month ago, yet up to the present writing there has been no such general and steady rain as is needed to fit land for plowing and the seeding of fall crops. The great tropical storm of September 8th, which struck and practically annihilated the city of Galveston, killing over 8,000 people, and destroying millions of dollars worth of property there and in other parts of Texas, fortunately did not reach this and the adjoining East Coast States. It passed up the centre of the country to the Great Lakes and thence went East to the Atlantic Ocean, destroying in its passage much fruit, and injuring corn and truck crops to some extent. It is one of the advantages peculiar to Virginia and North Carolina especially that we rarely suffer from the great storms which are so disastrous to other sections of the country, nor do we often have to complain of drouth being long continued or hurtful. In the latter respect, however, this season has been exceptional. Later reports, we regret to say, do not enable us in any way to modify what we said in our last issue as to the corn, tobacco, and other crops. They are lamentably short throughout nearly the whole of this State, and the same can largely be said of the other Coast States. The average condition of the corn crop of this State is next to the lowest (Kansas) in the Government report, which makes the crop but little more than a half one. This means that the State will have to be a large buyer of corn, to meet the needs of the people and stock. Fortunately for us the crop in the great corn-producing states is a large one, the total production being estimated at nearly as much as that of last year, that is to say, at over two thousand million bushels. Whilst, therefore, we may safely count upon having our needs supplied at very moderate prices, yet the difference between fetching corn from the crib and buying it from the store or mill will be acutely felt by hundreds, perhaps thousands, of our people. This should emphasize and fix in their minds the importance of making preparation to make good the deficit another year, and seek to prevent such an occurrence happening again so far as possible. That it is possible to do so when we have no more serious a drouth than we have had even this year, we are well assured from the numerous reports we have had from subscribers who, whilst living in the sections which have suffered the worst effects of this year's drouth, yet have good crops both of corn and hay. Our farmers fail to utilize the rain which falls upon the land so generously in the winter and spring. Instead of so breaking the land in the fall and winter months, when work of that character can be so well done by reason of our fine and open seasons, as that it shall readily hold and conserve the rains of late winter and spring farmers allow the same to remain unbroken until near planting time, or only plow so shallow a furrow that the rain as it falls runs off into the rivers, and is

not only lost itself but carries with it the the fertility of the land as well. They fail also, in another way, to conserve the moisture in that they do not fill the lands with humus from the great crops of forage plants which we can so easily and cheaply produce. One of the greatest objects served by humus in the soil is the conservation of moisture. It acts like a sponge in holding water, and this water so held not only serves to feed the crop when surface moisture is lacking, but it acts as a solvent on the inert plant food in the soil, and makes it available for the support and growth of the crops. We have made this pointed reference to the failings of Southern farmers, at this time, because now is the season when the first necessary steps to correct them should be taken.

No time should now be lost in breaking and fitting the land for the wheat and winter oat seeding. It is already late for seeding winter oats. as they rarely make the best yield unless sown in September, still we have seen very good crops raised from October sowing, where the land was in a good state of fertility and had been well prepared before seeeding. This matter of a fine preparation of the seed-bed for both wheat and oats is one that is not sufficiently appreciated by farmers. They overlook the fact that after the crop is once seeded no further amelioration of the condition of the land can take place during the growth of the crop. As it is at seeding time so it must remain until after harvest. More unsatisfactory yields of wheat and oats are caused by poor preparation of the seed-bed than by want of fertility in the soil. The greater the lack of fertility in the soil, the greater the need for perfect preparation of the seed bed, in order that the roots of the crops may have free course to run through the soil and forage for food. Do not, because late in commencing to fit the land for seeding, neglect to give the best working of the soil possible. Harrow and roll, and reharrow and roll again if need be until you have so prepared the seed bed that all its plant food may be within the reach of the seed when sowed. In this and our last issue, and that of the month previous, will be found information as to the fertilizer to be used on the crops. Do not seed until we have had a little frost, in order to be safe from the attacks of flies which have been so destructive in many sections during the past year.

Whilst it is late to sow crimson (German) clover yet we would not hesitate to sow it mixed with Sand vetch, or with oats, wheat, or rye, or a mixture of all three grains. If the winter should be a mild one, much of the grain will live, and the sand vetch and the clover will help to make a good cover, and give plenty of grazing and spring forage, and later, good hay. Sand vetch is the most promising of all the lately introduced winter-growing legumes. We have not yet heard of any failure in its growth during the past two or three years. When seeded with oats, wheat, or rye, it makes one of the best early spring pastures and forage for cutting of anything yet tried, and is also good as hay, whilst as an improver of the land, it is equally as good as the clovers. It may be sown until the end of the month with safety.

Cut and carefully cure all forage crops of cow-peas, soja beans, sorghum, and millet, as they mature, or even before maturity, if the time of maturity is likely to be beyond the middle of the month. It is better to have a smaller quantity of good nutritive dry forage from these crops than a larger yield badly cured, and after the middle of this month the work of curing these succulent crops is a very slow one, owing to the cool dewy nights and the diminished power of the sun. Do not allow the cut crops to lie broadcast longer than is necessary to wilt them thoroughly. Rake up into windrows, and make into small lumps or cocks before the dew falls on the crop in the evening. In the morning, after the dew is dried off, open out the cocks and expose to the wind and sun, putting up in larger cocks each evening until fit to store in the barn. In this way, these crops, and late or second crops of grass and clover, can be cured into excellent fodder. The work is no doubt greater, but with hay at the price it now sells for and is likely to sell for during the winter, and the scarcity of corn fodder, the "game is worth the candle." Save all the feed of every kind that you can. It will be needed on most farms, if stock is not to be sold at a sacrifice.

Let all corn crops be cut up at the roots and thus save the whole crop. Set up in good sized shocks, and tie these round the top with binder twine. They will then stand through even a gale of wind, and cure into good feed. When thoroughly cured, pull the corn and let the stalks and fodder be shredded, if you have a shredder, and be stored under cover or be stacked carefully near the barn ready for feeding. If you have no shredding machine, the stalks, if properly stacked and topped off with straw or marsh hay, will keep in good condition until wanted, and much less loss of food value will happen than if allowed to remain in shocks in the field, bleaching in the rain, and wind and sun. One half, or nearly so, of the food value of the corn crop is to be found in the fodder and stalks, and this half ought to be as carefully saved and utilized as the half found in the corn itself. If the fodder and stalks be properly cured and saved and then be shredded or cut up, and shredding is preferable if you can have it done, as it breaks the hard

part of the stalks into soft fodder, and this be fed with cow-pea hay or soja bean hay, nearly a complete ration can be made, and with the addition of very little corn live stock can be kept in a thriving condition all winter.

Sweet potatoes and Irish potatoes should be dug and stored away before the frost cuts the vines. Care should be taken not to bruise the tubers when digging and gathering. Every bruised place is a starting point for decay. Do not let the tubers lie longer in the sun than just sufficient to dry off the moisture. Sweet potatoes keep best stored in a cellar, or root house, where they can be kept dry and free from frost. The temperature of such a house should be kept as near equable as possible, at about 45 to 48 degrees, and be freely ventilated, except in frosty weather, when a stove or lamp may be required to be kept burning in the house to maintain the temperature. Both Irish potatoes and sweet potatoes "sweat" after being stored, and the moisture which thus arises must have means of getting away, or the tubers will not keep. Irish potatoes are best stored in small heaps of from 40 to 50 bushels, covered with straw until after they have passed through the "sweat." These heaps should be made under a roof that will keep out the rain. After the sweating period is over, the tubers may be stored in larger quantities together and be covered with straw and soil to keep out frost.

Sugar beets and mangold wurtzel beets should be pulled and stored away either in kilns or pies, or cellars before frost touches them. They are very susceptible to injury from frost, and will not keep when they have been frozen.

Let cotton be picked as it opens, and do not allow it to remain to be stained and weathered. Cotton is going to be in demand this year at a good price, as the crop is not going to be so large as was supposed, much of it being damaged or wholly destroyed by the storms and drouth

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After harvesting the crops and seeding the wheat and oats, let the teams be kept at work breaking land intended to be put into crop next year, and where possible both plow and subsoil the land unless it be on a loose, leachy subsoil. Plow deep enough to bring some of the subsoil to the surface, and in this way increase the depth of soil. The winter will fit this subsoil for plant growth. Wherever the subsoil is a good clay, it may and ought to be broken with the subsoil plow following the turning plow. When plowed, sow rye, or better, a mixture of rye and sand vetch, and harrow in. This will make a cover for the winter and spring, and prevent loss of plant food. Three-quarters of a bushel of rye and ten pounds of sand vetch to the acre will make a good pasture and cover.

See that all barns, stables and sheds are made wind and weather tight, and are thoroughly cleaned and lime-washed before the stock are housed.

LIMING LAND.

The fall and early winter months being the best time of the year for the application of lime to land, we desire to invite the attention of our readers to the subject, as we are convinced that a very large proportion of the land under cultivation in the South needs lime badly. Whilst lime is not directly a fertilizer, except to a very slight extent, and then only in the production of a limited class of plants, yet its action on almost every kind of land is beneficial to plant growth. This beneficial action is partly physical and partly chemical. Physically, it acts on light sandy land so as to make it more compact, binding the particles together and making it more retentive of moisture. On heavy clay land, it disintegrates the soil and makes it more permeable and easier of penetration by the air and the roots of the plants. Chemically, it sweetens all acid or sour land by rendering it alkaline and thus capable of producing and sustaining the finer kinds of plant growth. It also acts largely as a liberator of plant food; and especially is this the case with phosphoric acid and potash. It breaks down into available humus, tough plant and root growths, and all vegetable matter in the soil. All the clovers, and probably all leguminous plants, are helped by lime, as it so sweetens the soil as to enable the bacterial growths on their roots to multiply and thus become more efficient in assimilating the nitrogen of the atmosphere. In soil even slightly acid, these growths are checked in development and much of their beneficial action is lost. At the Maryland Experiment Station, the use of lime on the land has resulted in making what was formerly a most unproductive farm, one capable of producing heavy crops of corn, wheat and grass. At the Rhode Island Experiment Station, where a series of experiments have been conducted, the result has been equally marked. Lime was applied at the rate of one ton to the acre (25 bushels), in 1894, and phosphoric acid was applied in different forms on two series of plots each year up to 1899. Corn was grown on both series of plots in 1894 and oats in 1895. The use of the lime increased the yield of corn stover on every plot, and also the yield of grain, except on plots fertilized with floats. The oat crop was so heavy as to lodge badly. The grass crops, from 1896 to 1899, were most bene-

fitted by the application of lime. In general, the plots to which acid phosphate was applied were more benefitted than those to which unacidulated forms of phosphate were applied. The financial value of the increased crops of grass of the limed over the unlimed plots was from $27 on the plot fertilized with basic slag meal to $62.35 on the plot which had received ignited alumina phosphate, while the average financial gain for all the limed plots was $45. The limed plot which had received no phosphoric acid whatever, gave a financial profit second only to the plot fertilized with alumina phosphate $55.81 per acre. Whilst these satisfactory results have been achieved on soils not under laid with limestone rock, yet we have known excellent results to be also obtained from a dressing of lime applied to limestone land.

Lime should be applied after the land has been plowed and be harrowed in, or be applied to grass or clover as a top dressing. As to the quantity to be applied, Prof. Wheeler, of the Rhode Island Experiment Station, says:

"The quantity of lime to apply at a single application cannot be definitely stated for all soils and crops, since it would range under varying conditions from half a ton to three, or, possibly, four tons per acre. The old English practice of liming heavily at rare intervals has given way of late years to the use of smaller quantities applied more frequently. This is due to the fact that lime gradually dissolves out of the soils and escapes into springs and streams. In the case of light, dry, sandy soils, the range of application would usually be from 1,000 lbs. to one and a half tons per acre, according to their apparent need. On heavier soils, from one to three tons per acre is the usual range. On old pastures or meadows well covered with moss, certain writers advise spreading some lime upon the surface a while before plowing, in order to better effect the decomposition of the sod. Whether or not this practice is preferable to that of applying all of the lime to the surface after plowing, we are not prepared, from our own observations, to say, but can affirm that the latter practice yields excellent results. Upon breaking up such old fields, provided the soil is fairly heavy, one and a half to two tons of lime may be applied to advantage as just mentioned, and two or three years later a like amount may be employed just prior to reseeding to grass. If such treatment is resorted to at the outstart, applications of from one to two tons per acre or less, at intervals of from five to seven years, should maintain fields in good condition. It cannot be expected that fields that have been abused for years can be restored at once without some little extra outlay for lime, and it is not economy to attempt to accomplish the task by the use of such small amounts of stable manure as many farmers now have at disposal, or by resort to commercial fertilizers, unless enough lime is employed to put the land in condition so that the crop can utilize what is offered it. It is obvious that the first round of a rotation will yield less profit than the second and succeeding ones, but notwithstanding the fact that considerable expense is involved at the outstart, such sour, mossy and practically abandoned fields, if reasonably easy of tillage, may, even at the present time, be brought into good condition at a profit. By the use of lime, clover is made to thrive where it refused to grow before. This, if utilized upon the farm, constantly increases the store of nitrogen in the stable manure, and reduces first the amount of concentrated cattle foods, such as bran, cotton seed and linseed meal, which must be bought, and, finally, the amount of nitrogen required in the form of artificial fertilizers, so that the outlay for lime on such lands is soon saved.

"Upon moderately heavy land, from one to two tons of lime per acre, once during a rotation covering from five to seven years, will accomplish all that is to be desired."

A "COMMON SENSE" AND A "DOLLARS AND CENTS" VIEW OF THE CORN FODDER QUESTION.

Editor Southern Planter:

In our county are two neighbors, who farm about the same number of acres and keep about the same amount of stock. On one farm there has been fed 200 bushels of corn more than on the other. On this farm thirty to forty tons of marketable hay has been fed out. On the other farm no hay of any kind was fed. This covers a year just passed. The corn to day is worth $80; the hay could have been sold for $245, making a total of excess fed on this farm amounting to $335. On the other farm, instead of hay, a mixed combination of roughness, composed largely of corn fodder, some unthrashed oats, balance pea and bean straw. Notice, please, that except the seed in the unthrashed oats, all this mixture is a waste product on most farms.

We balance the handling of the one against the other, but charge $1 per ton for cutting and crushing the mixed stuff, $35, and 100 bushels of oats, in the unthrashed oats, $20. Total, $55. Taking this from the excess on the other farm, we have the net saving of $280. The manner of cutting and crushing this feed has been described in these columns.

Another item of profit: The second farmer sold twenty tons of this mixed feed for $6 per ton, and bought back the manure it made at 25 cents a load. This is not all. At no part of the year did the first farmer have a fat horse or a fat cow. On the other farm, the horses and cattle are now and have been fat. Buyers after them every week.

Why there is this difference in the physical condition of the animals is very simple: Number one overfeeds a heating concentrated animal food. It is an unbalanced, constipating ration, the excess of carbohydrates (heating quality) burns up the cooling laxative elements of the food while it is passing through the animal, and a large per cent. (which in extreme

cases amounts to more than half of the food value) of the nutritive quality of the feed, and it passes into the manure pile instead of into animal energy, meat or milk. Besides the actual waste, the animals are injured.

The other farmer feeds sparingly of a bulky, nutritious, nitrogenous and mucilaginous or slightly laxative food, that keeps bowels, kidneys and skin in an ideal condition, and the food elements are thus properly digested and assimilated by the animals and with a minimum of waste.

Animals fed under the first system are small boned and small bodied. Under the other, heavy boned and grow large bodied. We cite a case in point to prove this: On farm No. 2, is a five-year-old horse of mixed breeding, weighs 1,500 lbs.; his owner has refused $160 for him. Farmer No. 1 has no horse on his farm that would sell for $80. The cattle on the two farms show like results.

So much for the "*Dollars* and *Cents*." Now for the "Common Sense."

Farm No. 1 shows conditions that apply to 90 per cent. of our farms to-day. No farm papers to bring them weekly the ripe fruits of experience and experiments; no effort to advance; no study into why things seem to be going backwards; no brain work, but too much body work, drudging along in ruts and chuck holes.

Farm No. 2.—An intelligent effort is made to master the facts, both scientific and practical, and apply them to the every-day farm life. With each morning's new sunshine this farmer looks for something better than he has.

The works of Prof. Henry on "Feeds and Feeding"; of Prof. Shaw, on "Forage Crops," are consulted with the zeal that a doctor studies his text-books.

One is a progressive farmer, the other is not. We repeat that every day the evidence accumulates that "America" is to produce the choice meats for the world's best meat trade, and base the statement upon one fact principally. It alone is sufficient.

We are the great corn country of the world; no other country ever can equal us. The highest and finest grades of meat absolutely require corn to bring them a quality of taste, a firmness and finish that cannot be attained without corn.

We are nearing a period when corn will be crowned "king" of food products. Every year we will grow more acres and more bushels per acre, and get more per bushel for it. Sixteen to twenty cent corn is a thing of the past.

We urge farmers to save their corn fodder this year as a first step toward joining the great progressive procession.

We reserve for another article the "Common Sense" of the shredder and cutter and crusher methods of preparing fodder, and the "Dollars and Cents" feature in feeding out their work to farm stock.

In handling "King Corn," the corn binder fills an important place. To those of your readers who must settle that question at once, who will write (with stamp), we will explain why we selected one that binds its bundles lying flat down, a matter of great importance.

Our betterment as farmers and to attain the social, moral and financial independence due us, must come by building upon a broader and better foundation, using as corner stones, "A more general growth of intelligence," "A knowledge of how to build up our Soils," "The breeding of better stock," "A better knowledge of feeds and greater skill in feeding." Shall we do this?

Olney, Ill. ROBT. C. MORRIS.

SAWDUST AS A FERTILIZER.

Editor Southern Planter:

In the August number Bacon asks if rotten sawdust is any value as a humus maker, and Prof. Massey replies that it would cost too much for large areas, but it might pay on small patches. I believe in the old proverb, "that what is good for the goose is good for the gander."

I do not say that rotten chips or sawdust is an immediate fertilizer like stable manure, but if Bacon's sawdust is rotten and his land is stiff clay, or of that nature, let him put on a good coat of dust, say at least an inch thick, and plow down to a good depth early in the season, then in May or June run a disc harrow over it and plant to peas, and turn down the peas and follow with any of the ordinary crops, and if he does not find his land improved to fully compensate for the labor and expense then I will give up the theory of rotted chips being a benefit to land; but if the land is gravelly or gritty he had better burn the sawdust and apply the ashes, and the way I would undertake to burn it would be to take several logs of any length of pretty well seasoned wood, then pile five or six other logs at the side and on top of these, and cover with sawdust two or three feet or more thick, if not too wet; but if very wet, then make the layer thinner; leave an opening in the middle to act as a draft or flue. Set fire to both ends of the heap, and when burned down throw on some wood and shovel on more dust as long as it will burn. Sawdust will not burn where it has laid on a pile for any considerable length of time until it is thrown up on something so as to give it air.

Goochland Co., Va. EXODES.

Mention the *Planter* to your friends.



BARNS.

The question of the best form of barn to build is constantly being agitated among farmers, and we are almost daily in receipt of letters asking our advice upon the subject. Whilst we have never yet seen our way to change the opinion we gave some years ago through the columns of this journal—that no barn which was intended to shelter all the crops, live stock and machinery of the farm, should ever be built, especially of such combustible material as timber, but think in all cases it is better to build several structures, such as a storage barn alone and cow and horse stables in proximity t ereto but not connecting therewith, so that in the event of fire there may be some chance given to save part of the stock and produce of the farm—yet we are frank to confess that the sentiment of farmers generally is largely in favor of one building, even though the risk and danger be great. We have recently availed ourselves of an opportunity to inspect the new barn and stables just completed at the Virginia Experiment Station at Blacksburg, and as this structure seems to us to be as perfect in its arrangement and as complete in its equipment as any we have seen, we have decided to publish the following description and views of the structure, supplied to us by Professor Nourse, the Agriculturist of the Station, and which with full details of construction is intended shortly to be issued by the Station in bulletin form. Professor Nourse says:

"In studying the problem of a new barn to meet the requirements of a farm of three hundred acres and upwards, it was not deemed feasible to build a separate horse barn; the structure had to be such as would accommodate the work horses and mules, all cows, bulls and young stock represented in the College herd, and beside these, about forty steers used in the College dining hall during the winter and spring. After studying many barns on both public and private farms in various States, we were allowed an appropriation sufficient to build the commodious structure here described.

While it is large enough to answer present needs admirably, it can be enlarged in two ways at any time, without injuring the outlines or general plan, *i. e.*, by adding to either cattle wing, or by removing all horses to a barn specially built for them and using that space for cattle.



In discussing the structure in detail, it may be divided into several sections: Hay and grain barn, box-stalls and space above them, east cattle wing, west cattle wing, silos, open court, and yards. The hay and grain barn, 40 feet x 100 feet in size, faces the north, and loads may be taken in at the side and on the second floor. By this means all grain, as corn, oats, mill feed, etc., may be conveyed to bins at the left, and run by chutes to the mixing and feed room below.

Over these bins is a large space, in which a portion of the hay or fodder may be kept. At the right, on entering the driveway, is a space forty by forty-two feet, and extending from twelve feet below driveway to comb of roof thirty feet above it. This can be conveniently divided into nine spaces for various kinds of hay, to be fed to classes of animals as desired. All hay is unloaded from wagons by hay carrier, and is taken from the space mentioned, from floor under driveway and through doors on south side. The hay carrier is fitted with steel track, runs entire length of barn, and has a fork returner to aid the man unloading, to bring the fork back to the wagon. While unloading, the wagon stands on a five ton hay scale, offering an easy opportunity for weighing all hay and grain products. Close by the cribs is a corn mill, and the meal, as it is ground, drops to the feed-room below. Having a husking machine, we shall equip a corn conveyor, so that corn from the husker will drop into any one of the bins as desired, while the shredded fodder from the same machine may be easily carried, at the same time, to the hay section.

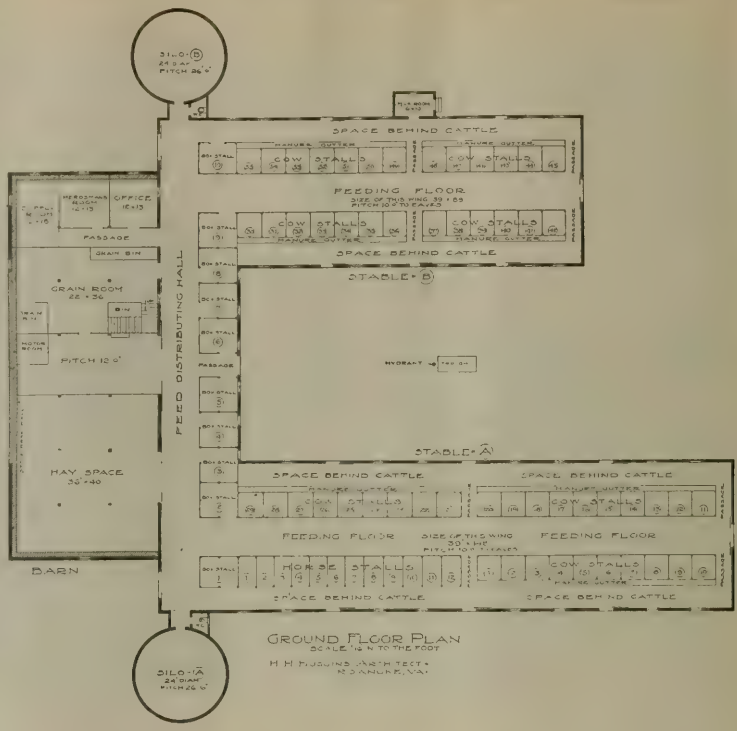
Beneath the driveway will be placed a gasoline engine to run the machines mentioned, besides the silage cutters, etc Walls of engine room to be of metal, except the back, which will be the foundation wall. On the same floor, and near the engine-room, is a two and one half inch valve, fitted with one hundred feet of fire hose, conveniently arranged to be used in case of fire. This valve and all others over the entire barn, and all water pipes, centre at this place, and may be drained to prevent danger of freezing.

The feed-room, under grain bins, is used for keeping ground grain and mixing all rations, being fitted with bins to receive grain from above. At the eastern end of lower floor is situated an office, where we may keep stable records, pedigrees, herd books, etc. Next that is a herdsman's room, that a man may be near the animals at all times, day and night. In the rear of this room is an apartment set off for keeping the supplies needed about the barn—shovels, forks, sacks, oil, rope, etc.

BOX STALLS.

Leaving the hay barn downstairs, we step into a long feeding passage in front of the box stalls. Of these there are ten, each 9 x 10 feet in size, arranged with a small door leading to the passage in front, and most of

them with doors outward to the open court. These are used for bulls, calving cows, and young calves. Above the passage mentioned is a long room, ten by eighty feet, entered by a door from the driveway above, that will be used for various purposes, mainly for the keeping of rough fodders used in experiment work.



CATTLE STABLES.

At each end of the passage in front of the box stalls (marked on floor plan, feed distributing hall), run north and south the two cattle wings, marked Stable A and Stable B, the former arranged for twelve horses, twenty-four head of young heifers and bulls on the opposite side in front of them, and for forty steers in the southern end of wing. In Stable B is room for fifty-two milch cows. As these wings run north and south, they get plenty of light at all times of the day; and, at the same time, as it is on the southern slope, they are protected from cold winds by the hillside and the hay barn. In drawing up plans, one of our first thoughts was to place all the animals under as healthful conditions as possible. To get this, light and air spaces are necessary, consequently the wings are higher than might be considered otherwise necessary. They are ten feet from the floor to the plate behind the cattle, eighteen feet six inches to the plate over the animals' heads, and twenty three feet six inches to the comb of roof.

By looking at the photo of the rear of barn, it will be noticed that the centre over feeding floor runs up with vertical sides above the roof over the cattle. By this means we get windows that swing on pins in the centre of sash, that may be opened for ventilation. By a series of cords that run through sash pulleys, these windows may be partly or fully opened, and all on one side at once. These, with the ventilators on the top of the wings, windows in rear of the animals and the many doors, offer ample means for obtaining fresh air, and, at the same time, all odors of the cattle are kept from the feed. The floors under the cattle are of two inch oak, laid with lead joints, making them water tight. The manure gutters are eighteen inches wide, six inches below the floors on which the cattle stand, and four inches below the floor in their rear. Length of floor for stock depends on size, from four feet for yearlings, four and a half feet for mature Jerseys, to five feet for heavy steers. Feeding floor in front of all is nine feet wide. We have used various means for confining the animals, desiring them for illustrative purposes, viz.: Bidwell stalls, Newton ties, various swinging stanchions (all these are advertised in agricultural papers), and the ordinary stanchions and tie chains.

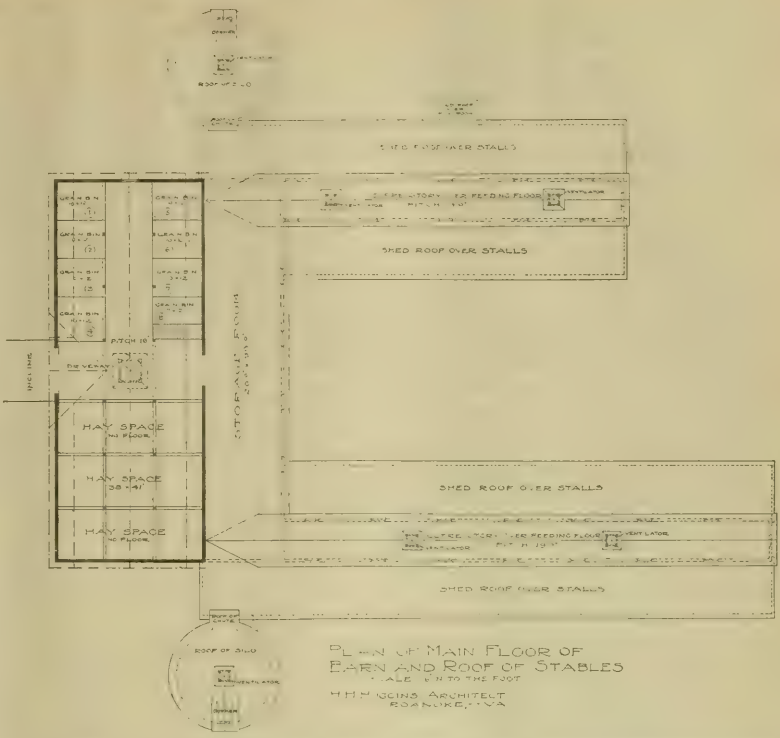
Above each stall is a glass covered frame with name and recorded number of animal. Connected with the east wing, where the dairy cattle stand, is a small room to receive the milk, prior to taking it to the creamery. It is fitted with a sink and water supply, scales for weighing milk, bottle rack for samples of milk used in testing, etc. In rear of all animals the sides of the building are all ceiled and painted. This is done for cleanliness. At short intervals the walls are washed, stalls cleared of all litter and trash, and water used run through manure gutters into a tile drain and out to the field.

The stables are fitted with four manure carriers, and these are an equipment that would save time and money on any farm where labor is hired. All manure may be thrown into one of these carriers, which run on an overhead track and through a door at the end of the barn, and, after being raised above a cart (as may be done by one man), the whole mass of manure drops at one operation by simply pulling a release spring. If desired, the overhead track may be con-

tinued and car run to some arranged dump. By using this, much hand labor is saved, and, if carted to the field at once, only one handling by fork is necessary, *i. e.*, when first put into carrier.

SILOS.

There are two silos, each of somewhat over 200 tons capacity. They are circular, on rock foundations, with only the earth for floor, and this is all we have found necessary. One silo was filled last September before the building was completed, even before the top or weather-boarding was on, and the silage kept very nicely, being good to the plank on the sides. If we were building again, we would make them exactly the same way, only possibly less in diameter.



It is wise to feed from the entire top of the mass of silage, and if the silo is too large the loss would be greater than if more and smaller ones were built. As we shall feed a larger number of animals in future, we shall have no trouble as to spoiling.

In the open court between the wings we have a very warm space for animals to spend on pleasant winter days, and a well-protected position at all times when they are turned out for water. The ground is covered with broken stone and coal cinders to keep stock out of clay mud, that would otherwise have given great trouble. Close to the water-trough is a fire hydrant, and in each cattle wing is kept a hundred feet of two and a half inch fire hose. This, with another hundred feet near the engine-room, should give ample fire protection.

In rear of the wings and on the sides not before mentioned, we shall arrange yards and water troughs for young stock and steers, and gradually cover with rock and cinders as on centre court.

Mr. W. W. Gray, of this place, was contractor for this building, receiving for all supplies and work (exclusive of such as was done by our regular labor), $6,259.73. The quality of material used and work done was all that could be desired.

As others may like to build a barn offering the same accommodations as this, but not feel able to make quite the outlay, we would offer the following suggestions to lessen the cost while retaining the main features in all essential particulars:

If appearances are not to be considered, all paint may be discarded, the sides covered by plank put on in a vertical position and joints covered by battens. Silos might be covered by ordinary weather-boarding, but without any lap, or the studding might even be left without *any* covering, and it would last many years, but would probably eventually be injured. Ordinary roofs might be put on silos instead of round ones, saving much in labor and some material. Stave silos could be built very cheaply, but we believe such as we have built would be best in the end. A small portion of the initial cost could be saved by using metal roofing instead of shingles, but it rusts so badly, particularly over stables, we think its use would be poor economy. Floors of passages might be made of rougher material, but under the cattle only the best should be used. In many instances an office and herdsman's room would be entirely superfluous. Corn cribs could be much more cheaply built outside by themselves, and the corn surer to keep than in this rather close position. By these changes all grain could be kept on the lower floor, saving much in the way of timbers, floors, etc. Cost of roofs of cattle wings could be considerably lessened by making them perfectly

plain but not close at comb, and above this run a box ventilator the entire length of building with hinged doors, operated by cords from the floor below.

Silos might be smaller in diameter (which would be best) or build only one. Cattle wings might each be made shorter, or one left off entirely. If only one wing was erected, herdsman's room, office and supply-room eliminated, then the hay-barn might well be shortened considerably. In these ways the size and cost could be reduced very materially.

FORTY ACRES AND A MULE.

Editor Southern Planter:

The problem of how to make "Small Farms Successful," in your September issue, is the most timely, if not the most important, agricultural question of the moment. The big wheat, cotton, corn, and hemp ranches, where thousands of acres are traversed by labor-saving appliances, will take care of themselves, as will the farms of one to two hundred acres; but the small farm, where the man and wife and man servant and a span of mules do the work, and still make a good living, is quite another question. The small farm is the ideal existence. In it every art of exact, systematic and intelligent practice of intensive agriculture finds scope.

In the first place, nothing should be done which is not well done, exactly done, and the aim must be to make the farm in every respect self-contained and self-supporting to crop, stock, and family.

Too great a diversity should not be attempted, as the result would be too many irons in the fire, and the proportions too small.

Crops which require labor-saving machinery should generally be given to larger farms. Again, to what is the soil best naturally adapted? To wheat, to oats, or to corn? Nor is it desirable to devote the whole farm to a special crop, to be harvested all at once, like asparagus, or beans and peas, early potatoes, strawberries, or other trucking.

Again, it will be better to plant such crops as sown broadcast take care of themselves, or which can be cultivated with a mule and cultivator. A large field of corn takes up too much valuable space, and the income is too small. Beets and cabbage and carrots can be planted 18 inches apart in rows, while corn needs three feet. Nor should crops all be planted or harvested at same time. To plant something in the fall, and something in winter, or very early in spring, and other crops in succession, and be taking off some crop all along through the season. The man and the mules, and the plow and cultivator, and the wagon want to be steadily employed. In the five acres about the house will be a kitchen garden, of course, a neat one, for all the immediate family supply of radishes, lettuce, peas, beans, corn, tomatoes, etc.; strawberries, cherries, currants, peaches, and the yard and building for a family supply of eggs and poultry. The pigs and sheep will go with the barn and stables and the out buildings and the manufacture of manure. Very little land should be idle as pasture. The pine woods and a few acres as a recreation ground and summer shade for young stock or for Sundays, while the most of the feeding should be under sheds and in racks in the yard enclosures. Pea vines, oats and peas, sorghum, corn fodder, clover, and straw should be the chief food supply; and in this manner of feeding, the mules and cows and sheep and pigs may all be allowed to run in the same yard. All the waste and manure will be saved and composted.

Two mules should plow and cultivate this small farm. One horse will do the daily shipping to the depot or to any considerable town. Two or three cows will be enough until there is demand for milk and butter, and a perfect knowledge of butter-making is learned. Poor butter is unprofitable. Five to ten sheep will almost get fat by foraging from what cows and mules do not eat. So with two or three hogs and a litter of pigs.

This is the foundation of the farming. Something must be grown to feed the stock and to make manure and keep up the fertility of the land, and keep it employed in winter as well as summer. Cow peas, soy beans, sorghum, crimson clover, vetches, oats, rye or barley, and, if need be, corn fodder, but this had better be corn, and save the whole corn stalk.

As to wheat and cotton and corn and the grasses for hay, the farmer must follow his taste; they are not intensive crops.

The last question, then, is to what is the soil and the surroundings of markets best adapted. A few acres of asparagus pays handsomely. Early peas would, if near enough to a railroad to ship, and strawberries, but a number of pickers are needed all at once. Would the village provide them, and would freight be too high? Peanuts and sweet potatoes require the whole season, as do carrots, parsnips, onions and beets, unless well South. All of these can be planted and cultivated by the mules.

A great deal depends upon what a man has a natural taste or fancy for. If too far from depot to ship specialties of greens, early beets, lettuce, peas, strawberries, tomatoes, etc., then potatoes and carrots and beets or onions should be raised.

Washington, D. C. S. S. B.

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FERTILIZER FOR THE WHEAT CROP.

The long-continued drouth has so delayed the preparation of the land for the wheat crop that it is not too late yet for us to say a further word on the fertilizer which is best to be used. A series of experiments conducted at the Tennessee Experiment Station on the crops of wheat harvested this year affords valuable information on the subject. The crop experimented upon was grown on heavy red clay land of good texture and great depth, upland, and in Tennessee, known as "mulatto land." The land was in grass sod of a number of years standing, and was broken early in August to the depth of fifteen inches and was cultivated every week until the time of seeding. The following table shows the different fertilizers used with the results, and is followed by the remarks of the Agriculturist of the Station who conducted the experiment:

RESULTS OF FERTILIZER EXPERIMENTS WITH WINTER WHEAT FOR 1900.

KIND OF FERTILIZER USED.	Amt. of Fertilizer used per acre, lbs.	Yield per Acre of		Gain from Fertilizer—Bu.	Cost of Fertilizer—per Acre.	Cost of One bu. of Increase.
		Straw—Tons	Grain—Bus.			
No Fertilizer		1.54	25.41			
Nitrate of Soda	150	1.90	31.66	6.25	$3.00	$ .46
Tenn. Acid Phosphates	250	1.53	27.18	1.77	1.50	.85
South Carolina Rock	250	1.51	26.25	.84	1.50	1.78
Basic Slag	250	1.46	29.37	3.96	1.88	.47
Tenn. Acid Phosphates	500	1.43	27.18	1.77	3.00	1.70
South Carolina Rock	500	1.52	27.50	2.09	3.00	1.43
Thomas Slag	500	1.38	28.75	3.34	3.75	1.12
Muriate of Potash	75	1.30	31.61	6.20	1.69	.27
Lime	50 bu	1.54	31.98	6.57	2.75	.42
Lime	100 bu	.80	28.43	3.02	5.50	1.82
Nitrate of Soda	75	1.36	29.57	4.16	2.40	.58
Tenn. Acid Phosphates	150					
Blood and Bone	225	1.50	26.56	1.15	2.81	2.44
Nitrate of Soda	75	1.42	31.87	6.46	2.34	.36
Muriate of Potash	37.5					
Tenn. Acid Phosphates	150	.92	29.47	4.06	1.74	.43
Muriate of Potash	37.5					
Nitrate of Soda	50	1.49	33.48	8.07	2.16	.27
Tenn. Acid Phosphates	100					
Muriate of Potash	25					
Nitrate of Soda	150	1.73	33.95	8.54	6.49	.76
Tenn. Acid Phosphates	300					
Muriate of Potash	75					
Complete Fertilizer	150	.88	24.68	.73	2.10	2.87
Complete Fertilizer	300	1.11	27.70	2.29	4.20	.83
Complete Fertilizer	450	1.10	29.99	4.58	6.30	1.37
Farm Yard Manure	5 tons	1.43	33.12	7.71	2.00	.26
Farm Yard Manure	10tons	1.88	37.13	11.72	4.00	.34
Farm Yard Manure	15tons	1.90	36.56	11.15	6.00	.54

The fertilizer was sown on the plats on October 6th. It was done by hand so as to get it uniformly distributed all over the ground and carefully incorporated with the surface soil. The lime was applied after the crop was up.

The wheat was sown broadcast on October 7th at the rate of two bushels per acre, the plats being similar to those described in the previous experiments. The soil was in very good mechanical condition, and there was sufficient moisture to insure quick germination and a vigorous growth.

The varieties of wheat used in making the tests were the Poole and Mediterranean, yielding 40 and 36 bushels respectively per acre in the variety test.

The land upon which no fertilizer was used gave an average yield of 25 41 bushels per acre. In every instance, save one, the use of a fertilizer increased the yield, but in many instances it was too small to be of any value. Barn yard manure was the most effective agent in increasing the yield over no fertilizer. When ten tons per acre were used, the increase was 11.72; while with fifteen tons, it was 11.15 bushels. A complete fertilizer composed of 150 lbs. of nitrate of soda, 300 lbs. of Tennessee acid phosphate, and 75 lbs. muriate of potash, increased the yield 8.54 bushels. A complete fertilizer composed of 50 lbs. nitrate of soda, 100 lbs. Tennessee acid phosphate, and 25 lbs. muriate of potash, increased the yield 8.07 bushels. The highest yield given by a single commercial fertilizer was with 50 bushels of lime—viz., 6.57 bushels; followed closely by 150 lbs. nitrate of soda with an increase of 6.25 bushels; while muriate of potash used at the rate of 75 lbs. gave an increase of 6.20 bushels. Many of the single fertilizers used failed to improve the yield materially on our soils. The use of nitrate of soda and Tennessee acid phosphate at the rate of 75 and 150 lbs., respectively, increased the yield 4.16 bushels; while nitrate of soda and muriate of potash increased the yield 6 46 bushels. Tennessee acid phosphate and muriate of potash at the rate of 150 and 37½ lbs., respectively, gave an increase of 4 06 bushels. A complete "ready mixed" fertilizer as bought on the market, showed a loss when used at the rate of 150 lbs.; 300 lbs., a gain of 2.29; and 450 lbs., a gain of 4.58 bushels.

From an examination of the table, it will be seen that the cost of producing one bushel of increase over no fertilizer in this year's trials was 26 cents when five tons of barn yard manure were used. With ten tons of barn-yard manure, 34 cents, and with fifteen tons, 54 cents. The next cheapest increase was 27 cents made with a complete *home mixed* fertilizer composed of 50 lbs. nitrate of soda, 100 lbs. Tennessee acid phosphate, and 25 lbs. muriate of potash. Following this came 75 lbs. muriate of potash with a cost of 27 cents per bushel of gain; next, nitrate of soda and muriate of potash with 36 cents; lime, 42 cents, Tennessee acid phosphate and muriate of potash, at the rate of 150 and 37½ lbs., respectively, 43 cents; nitrate of soda, 46 cents; and basic slag, 47. Lime used at the rate of 100 bushels was entirely too expensive, costing $1.82. Tennessee acid phosphate and South Carolina rock used alone at the rate of 250 and 500 lbs., respectively, were unsatisfactory. The complete fertilizer used and guaranteed to be a most excellent wheat fertilizer, was practically worthless, and the farmer using it could only do so at a heavy loss. Better results were anticipated from the use of blood and bone, but as this fertilizer was applied in what may be termed the raw state, probably it did not have a chance to prove its value during a single season.

The above results indicate that if the farmer is to

secure any returns from the use of commercial fertilizers, he must study the needs of his crop and his soil very carefully and use the utmost intelligence and discrimination in purchasing and applying the fertilizer, or he will be the loser. The amount of fertilizer to use has been variously stated. The use of large quantities is urged by many, but results for this year do not favor this method. The use of a moderate amount of a home-mixed fertilizer containing the three essential elements of plant food gave excellent results, as did also the use of five tons of barn yard manure. In most instances where a single fertilizer was used it was unsatisfactory, with the exception of nitrate of soda, muriate of potash and lime, but even in these instanses the cost of securing a bushel of increase was rather more than the average farmer could afford at the present price of wheat. The table distinctly indicates in this instance, therefore, the moderate use of home-mixed combinations of artificial fertilizers.

The point which we desire to emphasize in these experiments is the excellent results attained by the use of farm-yard manure even at the low rate of five tons to the acre. With only this light dressing an increase of nearly eight bushels of wheat was secured, whilst when used at the rate of ten tons to the acre (a by no means heavy dressing), the largest increase in yield given by any application was secured—nearly twelve bushels to the acre. The use of lime, which we have so often advised, was also clearly shewn to be most beneficial.

HUMUS AND FERTILIZERS.

Editor Southern Planter:

High grade commercial fertilizers alone will not permanently improve the soil, as in time the humus becomes exhausted. With the humus exhausted, the soil becomes dead and compact; in this condition it is not capable of sustaining a crop, and especially is this the case in time of excessive drouth. Soils deficient in humus will show signs of distress, where rain has been withheld, much sooner than the same kind of land will, where humus has been properly supplied.

In the second place, there is but little or no carbonic acid gas produced. This gas is a powerful solvent, and acts on certain rebellious elements in the soil, reducing them to plant food. But for the dissolving properties of this gas, said rebellious substances would remain in the soil without change, and would therefore render no more service in the matter of fertility than so many stones.

It follows that, in order to produce crops profitably and permanently improve the soil at the same time, humus and carbonic acid gas must be produced in proper quantities. These two substances may be regarded as the law and the prophets in farming, and without them there can be no profitable farming on a basis of soil improvement.

Having found that humus and carbonic acid gas are indispensable, the next thing is to produce them economically.

Any green crop turned under will produce both, but crops of the legume family, such as clover and cow-peas, will also, in addition to producing said substances, gather an abundant supply of nitrogen from the air. It will therefore be far more economical to employ a legume crop. The ranker the growth the greater the benefits to be derived. Consequently, it will usually pay well to fertilize liberally.

The following fertilizer may be employed per acre for clover or cow-peas:

Acid phosphates..... 250 to 500 pounds.
Kainit..... 300 to 600 pounds.

Broadcast, and plow in shallow, preferably a few weeks before seeding. From 70 to 140 pounds of muriate of potash may be used in lieu of the kainit.

The smaller quantity will usually bring good results, but in most cases the larger can be advantageously employed.

Where high fertilization is desirable, the larger quantity can safely and profitably be trebled. But before embarking very largely on this scale some experimenting may be necessary.

A green crop fertilized as above, and turned under at maturity, will not only furnish an abundance of the three necessary elements of fertility—nitrogen, phosphoric acid and potash—for the succeeding crop, but will also leave a large surplus of said elements in the soil for the permanent enrichment of same.

I will here emphasize the fact that when commercial fertilizers are applied direct to crops, in the usual way, there is but little or no humus and carbonic acid gas produced, and that consequently the soil, when treated for a number of years, say five to ten, under said plan, will continue to grow poorer and poorer, however abundant the applications may be. In proof of the position here taken, I will cite the following:

"The New York Experiment Station has made a ten-year experiment along the same line. Three plots were used, equal in every way, and lying adjacent. The yield was about 12 bushels each of wheat per acre. On No. 1, 800 pounds of high grade fertilizers were used every year. On No. 2, nothing was used; this plot was plowed and harrowed repeatedly from the time of reaping until the time of sowing in the fall. On No. 3, four tons of good stable manure were used every year.

"The result was that No. 2, with no help, continued to increase in yield from 12 to 32 bushels per acre, and made more wheat in the ten years than either No. 1 or No. 3. No. 1, with commercial fertilizers, rapidly increased for a few years, and then rapidly decreased, coming out third in the average."

From the foregoing it would seem that with deep and frequent cultivation fertilizers would be rendered unnecessary, but such is not the case.

The stable manure used on No. 3 had, at most, but little capacity for producing carbonic acid gas, this function having been almost wholly lost during the period of previous decomposition. Consequently, there was but very little humus or carbonic acid gas produced.

But when a crop of clover or pea vines is turned down, the oxygen of the air or rain water combines with the carbon of the vegetable matter, while decaying, and forms carbonic acid gas in abundance, which acts on certain rebellious substances, as already described. Hence, a legume crop is far superior to any plan that produces but little or no carbonic acid gas.

Moore Co., N. C. BRYAN TYSON.

[We are not disposed to agree with our correspondent as to the stable manure making but little humus. As humus-making material and as a permanent improver of the soil, both in plant food and texture, numerous experiments have shown it to be most valuable. As an immediately available plant food, recent experiments in Tennessee have shown it to be better than any other fertilizer. Five tons to the acre increased the wheat crop 7¾ bushels, whilst 10 tons increased it 11¾ bushels.—ED.]

MAKING MANURE.

Editor Southern Planter:

I read your criticisms of Southern methods in agriculture with a great deal of interest, but are you not just a little too severe upon the planters of South Carolina? In *The Southern Planter* for September you say we must dig the ground deeper and fill it with well composted manures. But where are we to get that manure when a few mules is all our stock and we only raise cotton?

Sumter Co., S. C. S.

The above quotation is but one of very many from letters which I have received containing stamps for reply, and asking very seriously for the exact directions for the simplest A. B. C. of farming. It shows the great interest taken in the matter of a better system of farming in the South, and I wish every farmer could have the *Planter* in his house.

To obtain the manure with which to leaven the soil for years hardened down by the foot of the mule in his ceaseless tramp, tramp, tramp in pursuit of the cotton is a serious question. Commercial fertilizers are but a makeshift. They are a kind of stimulant to the soil, leaving it exhausted more than before their application, and the soil steadily growing harder and less nutritive to the plants. In the first place, it is necessary for the farmer to thoroughly recognize the fact that a supply of manure is the most important question before him. It is the foundation of all the farm labor. When he has this question thoroughly impressed upon his mind he will see the materials for a compost heap at every step. All the refuse of the fields, the weeds and corn stalks, the scatterings about the buildings, what are left of husks and waste from feed, should all go into the ground and be covered; the weeds always cut before the seed ripens.

If only a few mules are kept, then there should be added a few hogs, at least. These will run in the mule lot and half feed themselves, besides rooting and working over and composting all manure and refuse thrown in to them.

Again, a part of the cotton land, as well as between the rows of corn, should each year be given to a crop of cow-peas. Sow a bushel and a half per acre broadcast, and cut or pull and house, or stack and feed. No matter if half trampled into the manure in the yard, clean it all up into heaps at times. It all makes manure. I would never sell a ton of cotton seed under $20 per ton, but feed or compost, or spread it upon the land and plow it in. A fall crop of vetch and crimson clover following the cow peas, or rye to be plowed in in March or April, will help.

The only commercial fertilizer I would purchase in South Carolina would be phosphate, and it is cheap there. This I would compost, careful to sow it all, with stable and yard manures and cotton seed. If corn stalks are not easy to handle, cut them up.

Sorghum, soja beans, teocinte, corn fodder are all profitable if only grown for manure and to be worked over by a drove of hogs. By the way, did you ever consider how easy it is to keep hogs, and how much profit there is in growing hogs for market? Not heavy, fat hogs, but reasonably fat, and one or two years old. And suppose you purchase two or three young heifers, no matter if cheap, native or scrub stock, so you can afford it, have them served by a bull of some good breed, and you will soon have something to consume the materials for an abundance of manure.

Washington, D. C. S. S. BOYCE.

In view of the fact that the per capita production of the farmers of the South is only $177, while in New England it is $317, and in the West $519, we venture the suggestion that there must be something in our system which needs improvement. Might not some changes in our farming methods bring about the raising of more grain and grasses, more vegetables and fruit, more and better beef cattle, more milk, butter and cheese, more pigs and sheep, more ready money in the pockets of our farmers, more property to the agricultural classes; hence more plenty, contentment and happiness among all classes of our population?

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Improving Land—Handling Corn.

Will you kindly answer the following through the *Southern Planter?*

I have eighty acres of old worn land that I want to improve. The soil is black and deep, well drained, and when plowed does not break up in clods, but is loose and hard to turn. It will not pay to cultivate this only every other year, and then it will only bring from ten to fifteen bushels of corn per acre. The growth, before it was cleared, was heavy sweet gum, oak and pine. It has been numbered land, and has been in cultivation for a long time. It is adapted to corn and rice, not for cotton.

Now, I want to know, can I bring this land up to five or eight barrels of corn per acre, and the plan to pursue from start to finish. I have the means to do it with. Please give me the plan.

2. I have about ten thousand bushels of corn to shell annually. I run my sheller by steam, and shell about 125 bushels per hour. When I run the sheller, it takes a good man with grain shovel to keep the corn thrown away from the sheller. I run the corn through a fan, which requires another scooping, and another scooping to measure it. Now, I want to get clear of scooping and handling corn so much. Sheller is on first floor. I want to put the fan on second or third floor and run by steam with sheller, and have something to take the corn up to the fan from sheller, after the corn leaves the fan to come in the spout back to first floor, where a man will stand with sacks to sack it. Sack to rest on scales, and when the required weight of corn is in sack, corn shut off, full sack removed, and empty one replaced.

Please give me the plan to get the corn up, and about the cost of the whole thing.

Washington Co., N. C. W. T. HOPKINS.

Your land, like a great deal of land in Eastern North Carolina, is a fine foundation for profitable farming if worked right and systematically. Your peaty soil has a superabundance of humus, but little mineral matter, and hence the line of improvement is plain. You say that it is well drained. That, of course, is the important thing with all such land. You say that it does not pay to cultivate it every year. I say that it does not pay to cultivate any land in the same crop every year. Single crop farming is the bane of the South. But that it will pay to keep that land growing something useful every year I know to a certainty, and until it is thus kept growing something useful between the sale crops it will not develop as it should. It will grow corn in small crops. It ought to grow corn in large amount if properly treated. There is a great deal of land in Eastern North Carolina that will grow little corn, but will still grow rice. This, any intelligent man should see, is because it lacks something that the corn needs and the rice can do better without. The great need of rice is nitrogen. The mineral matter plays but a small part in the rice crop. Your black soil has an abundance of nitrogen-forming material, and lime will help it to more rapidly release this. But corn needs not only nitrogen, but a large percentage of phosphoric acid and potash, both of which are very deficient in your soil. Thus, while the rice may be able to get along and make a good crop, the corn will certainly fail. Now, suppose that you try a little systematic farming on that land. Work it thus: Cut the corn as soon as well glazed and cure in shocks, and thus save the fodder in an economical way and shred the whole of it for feeding. In September or October (September would be best), sow the land in Virginia Turf oats. As soon as the oats are cut, plow the stubble and apply 400 lbs. per acre of acid phosphate and 50 lbs. of muriate of potash, and harrow them in well. Sow in peas. Mow the peas and make them into hay as the first pods turn yellow. Do not say that the pea vine hay is hard to cure, for it is the easiest hay in the world to handle, and I have a fine lot now in my barn cut the past week, and it is the best hay in the world for any animal that eats hay. Now, with the corn fodder and the pea vine hay you can feed cattle and make money in the feeding. As soon as the peas are cut run over the land with a cut-away harrow and sow a peck per acre of hairy vetch seed. In the spring, you can cut this too for hay and more cattle food, and then put the land in corn, and my word for it, you will get 100 per cent. more corn than you got before. Or, you might lengthen the rotation to three years and grow a crop of rice after the vetch. This will give you one field in corn, one in oats, peas and vetch, and one in rice; and if, at every round of the rotation, you give the peas the regular dose of acid phosphate and potash and keep this up year after year, I shall be surprised if you do not find that you can plant corn thicker and thicker, and will find, too, that your land is capable of making ten to twenty barrels of corn per acre; provided you breed corn to suit it and stop the growing of the long-legged single eared corn that requires such a wide distance that it cannot make a big crop. Breed by selection till your corn can be planted, as we do here, eight inches by four feet, and get, as we have on dry hills, over eighty bushels per acre. The pea roots will keep up the nitrogen content in your land, and it will be a good thing for the vetch till the land gets stocked with the tubercle making bacteria of the vetch to scatter a bushel or so per acre by hand of soil from a garden where English or garden peas have been long grown, and this will stock the land with the right bacteria.

As to the mechanical arrangement for your corn threshing, I think you can get the right idea by examining the various elevators used in the roller flouring mills.

W. F. MASSEY.

Growth of Trees.

An argument arose in my neighborhood a few weeks ago about the growth of trees. Some claim that the lower branches get higher from the ground. Do they? If so, how much would the trunk grow in fifteen years?

I have always thought that a tree grew by putting out new buds every year, and the old wood hardened and lost its vitality.

For example, do the pine trees of South Carolina drop their lower branches, or does the trunk grow; that is, are leaves and branches at the tops of those high trees the same ones that were there when the tree was four feet high?

If you will kindly answer this in the October *Planter*, you will oblige ROBT. S. BROOKE.

Brooklea, Va.

The lower branches of a tree never get any higher from the ground. By increase in thickness the lower part may get a fraction closer to the ground, but when the cells of the wood become firm they cannot elongate any more. The distance between one bud on a twig is fixed at an early stage of its growth, the bud at the end unfolds and the young tender growth at once elongates to the full extent, and the cell walls become firm and no longer extend in length. In all of our forest trees the growth is added on around the stem by successive layers of these microscopic cells, which grow smaller and thicker towards the close of the season, and thus give the appearance of rings of growth, so that the annual growth can be counted by the naked eye. The lower limbs of a tree resting on a hard rock may get a little higher by the thickening of the large roots at the collar. Pine trees crowded in thickets reach their tops to the sunlight and the lower limbs are crowded off, and the new circles of growth soon cover the scars, and they are finally only found as knots when the tree is sawed into lumber. The tall pine stems are formed by the dying out of the lower limbs. A pine tree starting in an open field will never make the tall timber stem as the forest tree does, because its lower limbs remain and develop. The limbs at the tops of the tall pine are the result of the growth above the lower limbs that were lost, and are not the ones that formed near the ground by any means. W. F. MASSEY.

Cream in Milk of Cows in Puerto Rico.

I wish to ask through the columns of *The Southern Planter* for an explanation of an article I lately read in an agricultural paper. This article says that there is no cream in the milk given by the cows in Puerto Rico, and that cows taken there from the United States after a short while give milk which has no cream in it. I should be greatly obliged to you for any explanation of the reason of this strange fact.

Elizabeth City Co., Va. A SUBSCRIBER.

There is no need for arguing about a "fact" that is not a fact. If you place any confidence in the tales of newspaper reporters about such things, you will believe many falsehoods. The cows of Puerto Rico may give poor milk, but no cow gives milk with no butter fats. Doubtless there is room for great improvement in the cattle on the island, and there will be little cream left in anything there if the military rule continues to milk the island. The condition of Puerto Rico is a disgrace to American liberty and civilization. W. F. MASSEY.

Budding Peaches and Apricots.

I have a few questions that I wish to ask through the columns of the *Planter*, and will be greatly obliged if you will answer in the next issue.

What time of the year are apricot and peach seedlings budded?

When are the buds cut for budding?

Also, give instructions for budding.

What would be a good book for beginners in the nursery business?

Carroll Co., Va. E. W. JONES.

Buds are cut for budding usually in August and September. Some nurserymen bud part of their stock in June and get a small tree the same season. But this is not advisable. Buds can be inserted as late as the bark will rise in the fall, and they are cut by inserting the knife half an inch or more below the bud and cutting straight up to half an inch or more above the bud. Then cut straight across through the bark only, and if the buds run well you can pull off the bud and leave the slip of wood behind. Make a T-shaped incision on the young seedling peach near the ground. Raise the bark and slip the bud in, making the square cut at the top fit the cross cut neatly. Tie with Raffia fibre or some flat tie, and when the buds have grown fast, loosen the tie. Cut back in the spring. Get Fuller's Propagation of Plants and Bailey's Nursery Book. W. F. MASSEY.

Weight of a Bushel of Various Products. Saving the Corn Crop.

Would you kindly answer the following queries through the columns of *The Southern Planter*?

1. The cubic dimensions of (a) bushel sweet potatoes; (b) shelled corn; (c) corn on the cob.

2. The September number of *The Southern Planter* advises its readers to cut down their corn crop at the root, thereby saving all of the crop. Farmers in this section pull their fodder and store it away, and then later cut down the stalks and ears; they claim that if the fodder is left on the stalk until the ear is ready to

pick, the fodder is dry and worthless; and that if they cut down the stalk and ear when the fodder is ready to be pulled the ear is immature and worthless. Would you kindly give your views on this subject?

Charleston Co., S. C. A NEW SUBSCRIBER.

1. A bushel of sweet potatoes is 50 pounds, of corn 56 pounds, of corn on cob 70 pounds. The cubic contents of a bushel measure is the same for anything. Corn will cure perfectly if cut when the fodder is in prime condition; that is, when well glazed. True there is a serious danger in the South in most seasons in cutting early corn off at the ground. This will usually come at a time when we have hot and moist weather. This season, any corn could have been cut off successfully. Late corn in the South can always be cut when glazed and cured in the shock, but we do not advise the cutting here of early corn during the rains of July and August. But any corn that comes into condition the last of August or early September can be cut with perfect safety.

W. F. MASSEY.

Sowing Rye in Orchard.

Will you please answer the following query in the October number of *The Southern Planter:*

My father has a small orchard about one fourth of an acre and wants to sow rye on it this fall. Will want the rye for a winter covering and winter pasture for chickens. Raised a small crop of potatoes on it this summer.

What I want to know is this: Will it be better to put manure on the ground before I sow rye, or wait until next spring and turn it under with the rye? About what time ought the rye be turned under?

If you think the rye will injure the orchard in any way, please say so.

Augusta Co., Va. DAVID J. OTT.

The best plan will be to sow some hairy vetch along with the rye. Then after sowing give the whole a top dressing of manure. You can do this more economically and uniformly with the Kemp manure spreader than by hand. Where the haul is not long and the land not steep this machine will save its cost in a single season. You should turn the growth under early in the spring, before the rye robs the trees of moisture to any serious extent. Turned under in time to plant vegetable crops, the orchard will be benefitted. W. F. MASSEY.

How to Destroy Weevil and Bugs in Grain and Peas.

Please give directions how to use bisulphide of carbon to kill weevil and bugs in grain and peas. If you know of anything else that is a good exterminator, please advise through the *Planter.*

Rutherford Co., N. C. A. S. WHITESIDE.

Place the grain or peas in a tight bin, barrel or box, pour some of the bisulphide of carbon into a saucer, and place this on the top of the grain or peas, and cover closely with a lid or with sacks, and keep close covered for twenty-four hours. The bisulphide will evaporate, and the fumes, being heavier than air, will settle to the bottom of the barrel or bin, and kill every living thing therein. If not convenient to place the grain in a bin or box, pile on a tight floor and cover with sacks, placing the bisulphide in saucers at various places on the pile before covering. This will require the use of more of the drug to be effective, as some part of it will be lost through dissipation into the room through the sacks. The drug may be poured on to the grain or peas and allowed to evaporate and permeate the mass without in any way injuring the grain or peas either for food or seed, but this is an extravagant way to use it. Great care should be taken in using bisulphide of carbon, as it is very explosive. Have no lights about when handling it. After the drug has done its work open doors and windows and allow the air to circulate freely for several hours before introducing any light into the place.—ED.

Hedge Plant—Seeding Wheat.

1. Please mention in your October number what kind of plant is best for a hedge fence, and where I can get seed? I see you do not favor it, but for my use (on railroad) I think I would like it.

2. Also say how much wheat you sow to the acre on good land with drill.

Campbell Co., Va. CHARLES A. TANNER.

1. The plant most commonly used in the South for hedges is the osage orange. It is, however, not by any means a good hedge plant, as its growth is naturally too rampant and rambling. To make a good hedge with it requires constant care from the time the plants are set out in the rows. The plants require to be cut back every year, and often twice a year, to keep the growth compact and bushy. With this care and the laying of the plants when cut back so that they grow almost horizontally in the fence row, a fairly good fence may be made and kept. If, however, it is neglected, the plants will grow tall and straggling and open at the bottom so that stock can easily pass through. A much better hedge plant for a garden fence is Citrus trifoliata, commonly called "Mock Orange." This is an evergreen plant and very ornamental, being covered with small oranges every year after it is once established. It grows compact and dense. Osage orange seed and plants can usually be had from nurserymen, and citrus trifoliata plants can be had from the Southern nurseries.

2. Usually from a bushel to a bushel and a half per acre, depending on the fertility of the land. The richer the land the less seed required.—ED.

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Trucking, Garden and Orchard.

WORK FOR THE MONTH.

Continue the work of harvesting, storing, and shipping the summer grown crops as they mature. In this issue will be found advice as to the harvesting and storing of sweet and Irish potatoes and sugar beets. Carrots and parsnips may be stored like beets, but being hardier they may be allowed to continue their growth longer. A light frost does not hurt them; indeed, unless the winter is a severe one, both carrots and parsnips will keep well in the ground, and can be dug as wanted. It is, however, always safest to have some pulled and stored away in a pie or in the cellar for use when the ground is frozen. Salsify, in the same way, is best left where grown and pulled or dug as wanted, though like carrots, it may be stored in a cellar. When so stored the roots should be covered with sand slightly moist. Ruta bagas and turnips should not be pulled until the end of November. They will increase in weight and size more during this month and the next than during any other like period in the whole of their growth.

Kale and spinach may be sown for winter and spring cutting, also turnips for salad.

Cabbage and cauliflower and lettuce seed may be sown for plants to set out in the early spring, or to push forward in cold frames for the market. It is not well to sow these until towards the end of the month or they may grow too large to transplant well.

Towards the end of the month cabbage plants may be set out for the early spring crop. In laying out the rows for this crop, it is well to run them east and west, as near as can be, so that the plants may be set out on the south side of a ridge thrown up by the plow. This will protect them from the cold north and north-east winds, and thus ensure an earlier crop. Do not be afraid of making the ground too rich. Cabbages are never overdone with manure.

Land not intended to be cropped with vegetables of some kind, should be plowed deeply, and if it has a good clay subsoil, be subsoiled, and then be seeded with Crimson clover, sand vetch, and wheat, oats or rye, so as to protect it from washing and to conserve the fertility.

Celery should be earthed up a little as it grows, so as to keep the stalks compact, but it is yet too early to earth it up completely. November is soon enough to do so, unless it is wanted for an early market Celery is always the best when earthed up and blanched after the cool weather has set in, and a light frost helps much to tender it.

If it is intended to set out any orchard trees it is not too early to set about preparing the land, though it is yet too early to set out trees. We are of opinion that fall planting of orchard trees is better than spring planting. The trees practically, in the South, get a year's extra growth, if planted in the fall, as the winters are usually so mild as to permit root growth and thus enable the trees to make an early start in the following year, whilst those set out in the spring are often hurt by hot dry weather before the roots have had time to take hold of the soil.

Clean up all leaves, trash and prunings in the orchard and vineyard and burn the same. Many insect and fungous pests can in this way be greatly reduced and held in control. The insects, eggs, pupa and spores are deposited in the leaves, twigs and trash, and there remain dormant during the winter, ready to resume activity in the spring. Destroy all the yellow cedar apples on the cedar trees. They are the means of spreading a dangerous fungoid disease in the orchards.

TRANSPLANTING PLANTS.

It is a commonly accepted idea that the transplanting of vegetable plants is conducive to earliness of maturity and to increased yield. This idea, however, does not seem to be sustained by the results achieved in experiments made at the Wisconsin Experiment Station extending over three years. The conclusions reached there are stated as follows: "Lettuce and other plants in the greenhouse, *when given sufficient room to develop* and not transplanted, matured quicker and produced a greater yield than similar plants that had been transplanted. In the case of tomatoes, there was a slight gain in earliness and yield in favor of the not transplanted plants, whilst those twice transplanted were very evidently injured. Cabbage and allied plants, when grown wholly in the open ground, were perceptibly injured by transplanting. The general conclusion drawn from these experiments is, that transplanting does not promote earliness nor an increased yield. Once transplanting, as of cabbage plants from the seed bed to the field, or 'pricking off,' as commonly practiced in the green-house, is necessary in order to economize room, but repeated transplanting of vegetable plants is not advisable."

THE APPLE CROP.

A word of warning may not be out of place to orchardists as to the sale of their fruit. Up to the date of the great storm which destroyed Galveston and afterwards passed over the centre of the country up to the great lakes and thence went eastward and out into the Atlantic ocean, there was every prospect that the yield of apples in New York and the New England States would be the heaviest ever known or near thereto. With a knowledge of this fact, apple buyers were holding off and offering only very low prices. This great gale has, however, altered the conditions. Tens of thousands of barrels of apples have been blown from the trees in the North and East. These are too immature to be marketable, and there bids now, therefore, to be only a comparatively small crop in all that great producing section. Apples are now in demand, and will be through the season. They are worth more money, and should not be sold for such prices as have been offering. A word to the wise is sufficient.

STRAWBERRY CULTURE—PROTECTION.

Editor Southern Planter:

That in cold climates, where the thermometer falls much below zero, the strawberry plants need winter protection is a well established fact. There it is the custom to apply mulching over the plants as soon as the ground freezes hard enough to drive on without much breaking of the crust. The date of application will depend on the latitude and the earliness or lateness with which winter sets in.

An almost endless variety of material can be used for this purpose—pine straw, wheat, oat or rye straw, forest leaves, marsh grass, and stalks of many kinds. What is desired is to cover the plants just deep enough to greatly lessen, but not entirely prevent, freezing. The harm that freezing, or rather alternate freezing and thawing, does is chiefly mechanical—the heaving of the soil and the attendant breaking of the roots as the plant is raised upward with the soil. This can be prevented by using more or less of the mulching material in proportion as its nature is to lie close or open and as the climate is more or less severe. Thus a much thicker mulch of corn stalks than of straw will be required to attain the desired results.

The objection to long light material like the straw of small grain is that it is liable to be blown off. Forest leaves are also objectionable for this reason. This difficulty is partially obviated in the case of straw by cutting up the material short. Probably the most effective prevention of this trouble with both straw and forest leaves is to anchor them down with earth or small stones judiciously placed at intervals.

How far South it pays to use winter mulch is a mooted point. It is doubtful whether as a rule it pays south of the Mason and Dixon line, except in the mountains. Some winters it pays in North Carolina. Often it does not. The objection to winter mulch at the South is that it harbors crickets and other insects harmful to the strawberry plant.

But for one purpose winter mulch is beneficial wherever the ground freezes as deep as two inches—that is to protect plants set in winter on wet, stiff soil. This soil is much given to heaving, and plants set on it in the depth of winter are apt to be lifted out of the ground by the alternate freezing and thawing. A handful of pine straw thrown over each plant prevents harm. On nearly all soil, or in fact on any except wet, stiff fields or parts of fields, this protection of newly set plants is not necessary south of the Mason and Dixon line. We do most of our planting in late November, December, January and February, and get a perfect stand without this protection except on a few wet spots. But at the North it renders practicable planting at a much later time in the fall than would be advisable without it.

The use of straw of various kinds to protect blooms from late spring frosts has now become pretty general. The straw is strewn along the middles in advance and put on the plants when frost threatens, and taken off when the danger passes.

The use of mulch to keep the berries clean is imperative. We apply it about blooming time.

For several years, beginning in 1887, I used cloth largely to protect strawberry blooms from frost. The kind used was a thin muslin, sold at the South for use on tobacco plant beds, where it is found equally valuable as a protection from frost and from a destructive species of fly. I found that the tarred or chemically treated cloth was much the best.

My object in using this protection was to protect the strawberry blooms from frost and also to promote earliness in the ripening of the fruit. The cloth was put on about a month before the blooming period and not removed till the berries were ready to be picked. Small, low stakes, provided with wire hooks, were driven in the ground at short intervals. These held the cloth securely against the hardest wind. Being low, they did not hold the cloth high enough from the ground to be torn from its fastenings by snow.

The effect of this mode of protection was fully up to my expectation, both as a safeguard against frost and as a promoter of earlier ripening of the berries. Berries under the cloth ripened about one week earlier than those outside. On April 16, 1890, the ground froze half an inch deep and frost killed every exposed bloom. Not one per cent. of those under the cloth were lost. As a consequence we netted nearly $1,900 on about six acres.

The largest yield that I ever made, 11,000 quarts on one acre and a quarter, was under cloth.

Moreover, there was another very unexpected and surprising result from this mode of protection. The berries grew very much larger, giving a corresponding increase in the yield per acre. This last result is in accord with the recent discovery by Mr. A. T. Goldsborough and others that in the protection of mammoth berries the use of the cloth is essential.

Just then came the large increase in the strawberry acreage in the lower regions in Eastern Carolina. While the strawberry does not grow as fine there as here, it ripens from two to four weeks earlier. Consequently, the week gained in the earliness of berries here did not justify us in diverting from our regular business the large amount of time and energy neces-

sary to make berry growing under cloth pay us. Had I to devote my whole energies to growing five or ten acres of strawberries, I should as soon as my soil was made rich enough to grow them to perfection, protect every acre with cloth. The cloth used must of course be very thin.

Kittrell, N. C. O. W. BLACKNALL.

PEACH YELLOWS.

Editor Southern Planter:

Peach growing has come to be one of the most important industries in certain sections of Virginia. This year, when a number of other crops failed to bring remunerative prices, peach growers have in many cases realized a good profit; much remains to be done, however, to give this industry the standing it rightly deserves.

Peach yellows is one of the most obscure of the diseases of orchard trees, and is not well understood. It has been well proven, however, that in an obscure manner it spreads from tree to tree over large areas with great certainty. The disease has been known in this country many years, and has almost entirely destroyed the orchards of some sections, while prompt action has prevented great loss in other sections. It attacks peaches, nectarines, almonds and apricots, but the three latter are of such slight importance in Virginia that we are not concerned with them.

If the tree is in bearing, yellows generally manifests itself first by the premature ripening of fruit, which exhibits red and purple spots of variable diameter, giving to the peach a mottled or speckled appearance. The red or purple discolorations are not confined to the skin of the peach, but appear as bright rays of discoloration extending from the pit outward.

The taste of peaches ripened prematurely by this disease is usually insipid; they are worthless for eating and often bitter to the taste. The disease may manifest itself, first, only in the peaches on one or two small limbs, but sometimes shows itself simultaneously in the peaches on all parts of the tree.

A well defined case shows an abnormal, dwarfed, bushy growth of small twigs and very small leaves on the trunk and branches of the tree, but often it is also seen at the terminus of branches. This growth is entirely unlike that of healthy twigs, and is most marked late in the season, often occurring after other growth ceases. This bushy growth may manifest itself before the close of the first year of attack, but becomes more marked the following year.

A diseased tree usually lives beyond the second year of attack, but rarely beyond the fourth or fifth year. Sometimes the tree becomes entirely worthless the first year of attack, and is usually worthless after the second year.

There is no remedy for this disease after the tree has once been attacked. The affected trees should at once be dug up by the roots, or chopped off leaving a stub by which they may be pulled out later. The trees should then be burned as soon as convenient.

The land should be cultivated and allowed to lay at least one year before other peach trees are planted in the same soil. All growers should be extremely careful not to allow old diseased trees to stand about their premises.

If each grower will be careful to remove and destroy the trees as soon as they show the first symptoms of the disease, it can be controlled. The State law covers the case fully, and there should be no hesitancy about applying it wherever peach growers are in danger. Close attention to this disease will do much toward making the growing of peaches a thriving and profitable industry.

J. L. PHILLIPS,
Acting State Entomologist and Pathologist.
Virginia Agricultural Exp. Station, Blacksburg, Va.

TANSY FOR PEACH BORER.

Editor Green's Fruit Grower:

Have you ever heard of the use of tansy as a protection against the peach tree borer?

A Mr. Garlick, of North Fork, of Roanoke River, (P. O. Perdue), Montgomery county, Va., who yearly markets wagon loads of fine, large yellow peaches at Blacksburg and elsewhere, is led to think there may be virtue in tansy by an experiment which he was induced to make. He has two orchards. When he set out the first one, which is now, I think, in the fifth year of bearing, he planted a sprig or two of tansy at foot of each tree. He says the tansy spread quickly, soon encircling each tree. Later, he planted a second orchard on much the same sort of land, in which he used no tansy. Now he finds borers attacking the last orchard, while he has never found one in the orchard where the tansy was used. If there is anything in this, would the tansy be likely to have similar effect if used among apple trees? Can the odor of the plant, which is quite pronounced, drive away the fly which is thought to precede the worm?

Virginia. H. D. RIBBLE.

Reply: We have heard tansy spoken of as a protection from peach tree borer and from other insects. The remedy is certainly worth trying.—Editor *Green's Fruit Grower.*

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AMERICAN FRUIT AT THE PARIS EXPOSITION.

Editor Southern Planter:

I enclose herewith a list of awards to exhibitors from the United States at the Paris Exposition in the temporary competitions in horticulture, held August 8 and 22d, 1900. The fruit exhibited on that date was from last year's and this year's crop, and was reported to be in good condition when displayed.

Washington, D. C. WM. A. TAYLOR,
Acting Pomologist.

AWARDS TO UNITED STATES EXHIBITORS AT PARIS EXPOSITION IN GROUP VIII, HORTICULTURE, IN TEMPORARY COMPETITION OF AUGUST 8, 1900.

First Prizes—Collections of Apples, Crop of 1899.

Division of Pomology, United States Department of Agriculture, general collection, twenty-two varieties, representing fourteen States:

Illinois State Horticultural Society.
Missouri State Horticultural Society.
New York State Commission.

Collection of Oranges—California State Commission.
C. G. Winn, Griggsville, Ill.

Second Prizes—Collections of Apples, Crop of 1899.

Nebraska State Horticultural Society.
North Carolina Department of Agriculture.
Jos. A. Burton, Orleans, Indiana.

AWARDS TO EXHIBITORS FROM THE UNITED STATES, IN TEMPORARY COMPETITION IN HORTICULTURE AT PARIS EXPOSITION, AUGUST 22, 1900.

GROUP VIII—*Horticulture.*
CLASS 45—*Fruit Trees and Fruits.*

First Prizes—Collections of Apples, Crops of 1899 and 1900.

Division of Pomology, U S. Department of Agriculture, general collection.

Crop of 1899, 24 varieties, representing 13 States.
Crop of 1900, 19 varieties, representing 2 States.
New York State Commission.
Collection of Apples, Crop of 1899.
Illinois State Horticultural Society.
Missouri State Horticultural Society.
C. B. Wood, Washington, Va.
Collection of Apples, Crop of 1900.
Farmer's Produce Association of Delaware.

Second Prizes—Collection of Apples, Crop of 1899.

Joseph Husband, Leanderville, Ill.
Collection of summer apples and pears, crop of 1900.
Peninsula Horticultural Society.
Collection of summer apples and peaches, crop of 1900.
Charles Wright, Seaford, Delaware.

Third Prize—Collection of Apples, Crop of 1899.

A. Nelson, Lebanon, Missouri.

VIRGINIA STATE HORTICULTURAL SOCIETY.

Editor Southern Planter:

The annual meeting of the Virginia State Horticultural Society is to be held at Roanoke on Tuesday, November 20th, and following day. Some of the most prominent authorities in horticultural matters in the United States have promised to attend and deliver addresses. An exhibit of fruit is being arranged for the occasion. Each member of the Society will be notified as to hotel arrangements, railroad facilities, etc., as soon as all arrangements are completed. Our aim is to make this coming meeting of the greatest interest to our members, and the public generally will be welcomed. Any one interested in horticulture, or the development of the fruit industry in Virginia, will not only have an opportunity of seeing specimens of the fruit products of our State, but of hearing able addresses by practical men and interesting discussions on all subjects of interest to horticulturists.

Crozet, Va. WALTER WHATELY,
Secretary and Treasurer.

WHAT SPRAYING DID.

Two orchards lay side by side, on soil, to all appearances, exactly similar, one containing 15 acres and the other 10 acres. The former was loaded with as choice fruit of Spires, Roxbury Russets and Maiden Blush, as I ever saw, being entirely free from worms and scabs.

The latter, having the same varieties, contained less than half as much fruit, and of very inferior quality, the explanation being that the orchard containing the best fruit was sprayed at frequent intervals with Bordeaux mixture and Paris green from the early spring until late in June. So thoroughly had this work been performed that when I was there (August 30) the trees were yet coated with the fungicide.

The other orchard received no applications of these mixtures nor cultivation during the season, owing to unavoidable circumstances, and the results were very apparent.

APPLE LOSSES.

The serious damage to apples in many parts of the commercial orchard belt, as a result of the furious and persistent gale of early Sept., is not yet fully measured. While first reports were in some instances exaggerated, latest advices still show beyond question that enormous quantities of apples were blown from the trees. In response to our special inquiry, returns are now coming in rapidly from apple sections, universally pointing to heavy losses. While sheltered orchards and those on the eastern slopes of hills escaped serious damage, our advices indicate that all the way from 10 per cent. up to 60 and 75 and occasionally more of the apples are on the ground. Reports as a rule indicate 25 to 50 per cent. blown off the trees in the territory from Lake Erie eastward, losses in the central west and southwest variable, including Mich., Ill., Mo., etc.

Live Stock and Dairy.

SALE OF SHORT-HORN CATTLE AT WELDON, PULASKI COUNTY, VA.

The sale of Major Bentley's cattle, on the 12th of September, whilst not so successful as we had hoped it would be from the high character of the stock offered, yet showed that buyers were willing to give fair prices for stock. It must be remembered that Weldon is way out of the beaten track of the great stock buyers, and that a journey there meant both expense and trouble. Had Major Bentley's stock been offered in one of the great stock marts of the West or North, we are satisfied that much higher prices would have ruled. The forty head catalogued sold for $4,070, an average of $102 per head.

21 cows and heifers averaged	$123 57
17 calves averaged	73 23
2 yearling bulls averaged	115 00
19 head of cows and heifers, including 7 calves that were sold separately, averaged	160 52

In this lot of 19 there were four two-year old heifers that had calves six and seven months old, and they averaged, with their calves, $179.

The average of the cows and heifers was much reduced by low prices on three old cows, two of them very old. The average on the calves was reduced by the low price for which an injured one was sold.

THE DORSET SHEEP.

Where They Originated—Their Peculiar Advantages—Breeding at an Early Age—The Value of Roots for Raising Sheep.

Editor Southern Planter:

The sheep business, like every other business, whether agricultural, mechanical, or professional, will succeed in proportion to the amount of knowledge, skill, and painstaking applied to it. "Knowledge is power," and "work wins." To make money raising live stock, good stock must be raised.

The difference between raising the improved breeds, full of strength, and vitality, and the breeds that have degenerated—lost vigor, and the most important points of usefulness, is often the difference all the way between profit, and loss. A farmer may be in a situation where he can make a little money by raising the run down breeds of cattle, or sheep, but he could make more by raising higher bred animals.

In Ohio, the Dorset sheep are highly esteemed wherever known, and by some breeders believed to be in most respects superior to all others. They originated in the county of Dorset, which is situated on the southwest coast of England, and is well watered by the small rivers Frome, Stour, Piddle, and Ivel. The surface is hilly and uneven, and the soil composed chiefly of sand, gravel, and clay. The wide, rich vale of Blackmore, and the luxuriant pastures and orchards of the extreme west, have made it sometimes called "The garden of England." The air is remarkably mild, and salubrious, and Weymouth has long been celebrated as a fashionable health resort.

The remains of ancient Roman camps and fortfications, and an immense amphitheatre are found in the county, and the ruins of Corfe castle, a seat of the Saxon kings, is among the most famous in England. The remains of a colossal reptile were exhumed at Lyme Regis.

Dorset is mainly a pastoral county, producing sheep, cattle, butter, and cheese, also some wheat, barley, and hops are raised. The chalk hills, or downs, are covered with fine, short pastures, on which countless numbers of sheep are fed, mostly Southdowns.

Agriculture has greatly improved throughout the county during the past twenty years, steam cultivation and improved farm implements largely introduced, and the acreage of root crops to be eaten by sheep, greatly increased. Artificial manures are extensively used on the root crops to stimulate their growth.

The horned sheep of Dorsetshire, long celebrated, have become a well established and profitable breed.

Prof. Bell, an English writer, describes them as follows: "A handsome, though somewhat old-fashioned breed, principally esteemed for its producing lambs earlier, perhaps, than any other in this country. To the eye of him who seeks for beauty in harmony and proportion, this sheep is one of the handsomest in any part of England. The strong, well-formed body and limbs, the clear white fleece, the finely curved horns, and other points, will to him constitute a more pleasing combination of character than is to be found in those breeds which have become more changed from the old stock by repeated transmission of peculiarities, which however advantageous to the breeder, whether for sake of the fleece, or the flesh, cannot be considered as adding to the abstract beauty of the animal."

The peculiar advantage of Dorset sheep consists in the precocity of the ewes, which arrive at maturity, and drop their lambs at a younger age than the ewes of any other breed. They usually lamb in the months of September and October, and the lambs are ready for winter consumption, and sell in the towns for an excellent price.

Lambs with large heads should be disposed of, and only those with small heads retained for breeding purposes. As like produces like, the lambs of small headed sheep are more likely to have small heads, and be born with less difficulty and danger to the mother and the lamb. Lambs, if vigorous, should be castrated at three days old, as they bleed, and suffer less at that age than if the operation is deferred for weeks or months. No English farmer would think of raising sheep without an abundance of turnips to feed them, not that turnips possess great fattening properties, for they do not, but because they are a good appetizer, supply bulk for the stomach, are easily digested, and keep the bowels regular. They provide a moist succulent food after the grass is gone.

An American feeder declared that when his sheep were fed plentifully with roots, they ate twice as much grain, and fattened three times as fast.

The quicker animals can be fattened, the greater will be the profit, and if they can be induced to eat more grain, and properly digest, with the help of turnips, then the turnip crop will be valuable by making the grain ration more available, and getting the animal ready for market in shorter time.

Some farmers think that turnips cannot be raised in this country so profitably as in the moist climate of England. I have raised as good crops of turnips in Pennsylvania as were ever raised in England, or in any other country, and others can do the same.

Our neighbors, in Canada, raise them extensively—fields containing ten to fifteen acres can be seen growing there most luxuriantly, and during their season, presenting a most beautiful sight. Enormous quantities can be raised to the acre. Thomas Messenger, of Long Island, obtained fifty-five and a half tons of mangel wurzels to the acre, at a cost of only six and one-third cents per bushel. William Birnie, of Springfield, Mass., raised ninety-five tons of mangel wurzels on two and a half acres of land, or at the rate of thirty-eight tons per acre. George B. Loring, of Salem, Mass., raised over twenty-two tons of ruta bagas per acre on his farm, at a cost of little over seven cents per bushel. It is objected to turnips and mangels, that they are composed of ninety per cent. of water. True, but the water contains *sugar*, which is a fattening substance, besides they contain over seven per cent. of flesh forming, and fat forming substances, in the best possible condition for assimilation by the organs of secretion.

I am not writing an essay on root crops, but wish to show their low cost, and great value for feeding sheep.

Some people think the silo has superseded the necessity of raising root crops in America. The silo is all right, but we need the root crops, too. Animals, like mankind, love a variety of foods, and it pays to gratify their appetites, and encourage them to eat and digest more fodder, and lay on flesh faster.

In calculating the profit of sheep raising the value of the manure is generally forgotten. It is stated by chemists that the manure of a sheep is worth one and a half cents per day, as compared with the price of commercial fertilizers. If this be true, then the excrement from one hundred sheep is worth $547.50 per year.

J W. INGHAM.

PER CENT. OF FAT IN CREAM.

Editor Southern Planter:

Your correspondent (page 398) gives a rather laborious, indirect method of obtaining the per cent. of fat in cream. Direct methods have always appealed to me.

In order to get eighteen grams of cream, it is easily weighed on a small, even-balanced scale, or, take nine grams of rich cream above 30 per cent. and make the determination directly.

A nice little scale for this purpose is made and sold at a low price, which would be saved in a little while, or in the time that would be required to make a few determinations by the circuitous method noticed above.

After determining fat in milk and skim milk, how much is allowed for losses in handling? Did your correspondent ever try checking up on several such determinations? If so, he knows the per cent. of fat obtained in that way is not very accurate.

Recently, I have found 00.05 per cent. and 00.075 per cent. fat in skim milk with the double necked test bottle, where the old double volume test bottle refused to show enough to measure, and one could only record "trace."

After the per cent. of cream is found to reduce to a cream containing a given per cent. of fat is easy, but some beginners may wish a method simpler than that given at page 452, and which is presented here.

We work to 100 lbs. Suppose a cream has been found containing 40 or any other per cent., and it is proposed to make it 20 per cent. The milk from which this cream was made at night may differ from the 4 per cent. morning milk we will use to make 20 per cent. cream from the 40 per cent. cream. We wish to take enough of each, both unknown, so that when combined they will together contain 20 lbs. of fat in 100 of cream. Therefore, these two unknown quantities added together equal 100. Moreover, when one is multiplied by forty hundredths and the product added to the product of the other multiplied by four hundredths, the sum is the twenty pounds of fat in one hundred of cream.

The following simple statement solves every

problem of this kind, and may be easily learned by any one who can run the Babcock tester, and the application made to any per cent. of fat which may be found in either natural or skimmed milk :

(1) x equal to pounds cream required of 40 per cent. richness.

y equal to pounds milk required of 4 per cent. richness.

(2) $x + y = 100 =$ lbs. cream of 20 per cent. richness.

(3) $\frac{40\,x}{100} + \frac{4\,y}{100} = 20 =$ lbs. fat in 100 of newly made cream.

(4) Clear equation (3) of fractions and it becomes $40\,x + 4\,y = 2000$.

(5) Transfer (2) into : $x = 100 - y$.

(6) Then substitute the value of "x" as given in (5) for the "$40\,x$" in (4), and find the value of "y" to be 55.55 lbs., whence $100 - 55.55 = 44.45$ lbs. as the value of x.

These same figures represent 1 lb., 10 lbs., or 1,000 lbs. by the change of the decimal point. Now, suppose the call was for one pint or pound of cream at 20 per cent. fat. The above gives for one pound .4445 of one pound of cream at 40 per cent. and .5555 pounds of milk at 4 per cent.. These decimals must be multiplied by 16 to reduce to ounces for weighing on common scales. Thus, $.4445 \times 16 = 7.112$ ounces of cream, or $7\frac{1}{8}$ ounces, and $.5555 \times 16 = 8.888$ ounces of milk, or $8\frac{7}{8}$ ounces. If ten pounds had been needed, the left hand 4 in one case and 5 in the other would have been pointed off as pounds and the ounces would have come out as above. But the simpler method would be to do nearly perfect work with the separator and use skimmed milk to mix with the thick cream, thus :

50. lbs. cream at 40 per cent. =	20.	lbs. fat.
50. lbs. skimmed milk at 00.05 per cent. =	0.025	lbs. fat.
100. lbs. cream containing	20 025	lbs. fat.

That is, take enough thick cream to give the pounds of fat required, and placing the vessel containing same on the scales, make the weight up to the desired amount by addition of skimmed milk containing practically no fat.

FRANK E. EMERY.

Biltmore Farms, Biltmore, N. C.

RED CLAY AS A CURE FOR TEXAS FEVER.

Editor Southern Planter :

On page 504 you express a doubt as to red clay possessing curative properties. Apparently you are correct in the supposition, yet, as a believer in the healthfulness of common earth for horses and cattle, I am inclined to think that possibly, even in distemper, the instinct of eating red clay was nature's prompting. Once in visiting a veterinarian's sanitarium I saw one of his patients, a horse, covered with a skin rash, which did not promptly yield to his treatment, and was led to say, "Doctor, why did you not tell the owner, when out driving with the horse, to take along a spade and lift some sods, which put in the animal's manger. You know the sods would be eaten and recovery follow immediately." His reply was : "If I pursued that course my trade would be gone."

In all diseases due to disordered stomach in horses, I know of no remedy more quickly effective than a good sod, or clay. All of us have seen horses lick up dirt as they would food. May not distemper, even though due to ticks, be controllable in some degree by nature's instinctive remedy ?

Ballston, Va. R. S. LACEY.

ANIMAL PARASITES.

PART II.

In discussing the external parasites we shall divide them into *orders, sub orders* and *families*. All pass through three distinct stages of life ; the stages being known as the larval, pupa, and adult. Some of the orders to be described are parasitic only in the adult stages ; others only in the larval, and none in the pupa stage. Some are especially injurious to the health of the host while others are not specially so, but are annoying. Some are carriers of disease producing germs, while others cause disease by extracting nutrition from the animal economy by interfering with the normal function of organs. Again, others are active in reducing the commercial value of the products of animals. In fact, all are objectionable in one way or another. We shall first consider the order

DIPTERIA,

the families of which include the mosquito, flies, gnats, and a family erroneously termed "ticks." The parasites included in this order are all perfect insects in the adult form, and are distinguished by having but one pair of wings, the second pair common to other insects being very rudimentary or represented by modified structures called halters or balancers, the use of which is not well known, and which are usually present even in the insects of this order in which the wings are wanting. In many of the parasitic forms, however, the wings are entirely absent, as in the sheep-tick. Their mouth parts are suctorial, and in the parasitic forms are well adapted for piercing the skin and puncturing the small blood vessels. In some families which are not parasitical in the adult stage the mouth parts are very rudimentary, or absent, and the power of piercing the skin of its host is lost, and the term of life of such is very brief after the adult stage is reached. The eggs are deposited in putrescent animal substances, in the bodies of living animals, or on the hairs of living animals. The eggs of a few are hatched within their own bodies, and the larvæ of some even remain there until they reach the pupa stage.

The larvæ of the different families are adapted to widely different conditions of existence, but in most cases require a certain degree of moisture. The degree of moisture required, however, varies to a great extent; some living entirely in water, and are termed aquatic, while others develop in comparatively dry places in the earth or upon plants. They are fleshy grubs, maggots or slender worms destitute of true feet, though some have organs which serve the same purpose.

The pupa are either formed by a simple contraction and hardening of the larval skin or by the formation of a fiber-like substance around them. In immerging from this pupa stage the case is either split in a longitudinal direction on the dorsal surface or in a circular manner near the cephalic (head) end, and the cap, as it were, is lifted off, leaving a round aperture through which the adult escapes. Comparatively few are parasites in the strictest sense, although the order contains many which are, to say the least, extremely troublesome.

FAMILY CULICIDÆ.

This family includes the mosquitoes and gnats. They are slender bodied delicate insects. Their wings are gauze-like, the veins of which bear minute scales. Their mouth parts are long and slender, with the maxillæ and mandibles free and lance like, and capable of inflicting deep wounds. The larvæ of those in which the life-history has been studied are aquatic, living in stagnant water. They live most of the time at the bottom, where they feed on decaying matter, thus acting as scavengers, on account of which it has been stated by earlier writers that they are a benefit in clearing swamps of miasms. While the swamps may be cleared of miasmatic germs by these larvæ, the adult is now generally credited with transmitting malaria through its bite to the human family. The larvæ occasionally rise to the surface for air by a jerking movement, inhaling the air through a star-like respiratory tube which connects with the trachea.

The pupa have club shaped bodies owing to the greatly enlarged thorax, and remain near the surface of the water as "wigglers." When disturbed they go to the bottom, but soon return to the surface. They do not eat.

The eggs are laid in a boat shaped mass which floats on the surface of the water. No doubt some of the species of this family breed in moist places. Otherwise it would be difficult to account for the large numbers of mosquitos found in the tall prairie grass of the West remote from water.

Osborn states that about one hundred and fifty species of this family have been described, and of these over twenty belong to North America. They are principally divided among the genera *Culex*, *Anopheles* and *Corethra*, the majority being included in *culex*, which are considered as the mosquito proper.

The habits of the mosquito are extremely aggravating and oftentimes injurious to man and animals. And, while animals cannot express their sentiments in words, man has expressed his resentment by recommending the following suggestive names: *molestus*, *pungens*, *punctor*, *damnosus*, *excitans*, *impatience*, etc.

Of the American species *Culex pungens* is best known. Howard states that the eggs are laid at night, or in the early morning, the number varying from two hundred to four hundred in each boat-shaped mass, and that they may hatch in sixteen hours. The larval state may be completed in seven days, and the pupæ may last only twenty-four hours. From the above it will be seen that a generation may be completed, under favorable circumstances, in about ten days. Many generations are, therefore, reared in a single season. They hybernate in the adult condition under all sorts of shelter; the degree of cold seeming to have no effect on them, since mosquitoes are said to be abundant in the Arctic region.

As parasites, the females, in which the mouth parts are well developed, are decidedly annoying and very unladylike in their attacks. The male seems to be ashamed of himself on account of his rudimentary mouth parts and remains secluded. In many sections of the country mosquitoes are so numerous that stock does not thrive, even on the best of pasture, owing to the great irritation, loss of blood, and annoyance by these pests. The writer has seen it necessary in northern Iowa for stock owners to build a smudge and drive their cows into it in order to milk them at all on account of countless numbers of mosquitos. Eastern Virginia is also similarly infested with the same pest.

To some individuals the bite of the mosquito is not especially annoying and no after effect is observed, while to others a great deal of irritation is produced, the punctured skin becoming inflamed and swollen, and itching intensely for several days after the bite. No doubt stock are affected in the same manner. In sections of South America it is said that mosquitos ar in such great numbers that stock are frequently killed by their attacks, and that natives are compelled to smear their bodies with oil or bury themselves in sand, leaving only their oil smeared face exposed, in order that they may sleep at night. Even in some sections of this country sportsmen are said to smear their hands and faces with a mixture of olive oil, three parts; oil of pennyroyal, two parts; glycerine, one part; ammonia, one part. Washing the bitten parts with ammonia will relieve the itching with most people.

Several methods have been suggested for the destruction of mosquitoes. Osborn takes the following extract from an article by Dr. L O. Howard: "Of remedies against mosquitos in houses, the best is thorough screening of windows and the placing of nets about beds. If the insects are troublesome in sitting or sleeping rooms, during the evening, the burning of pyrethrum will so stupify them as to make their presence unobjectionable. Pyrethrum, for this purpose, should be prepared by moistening the powder sufficiently to allow of its being molded by hand into little cones about the size and shape of a large chocolate drop. These cones are then placed in a pan and thoroughly dried in an oven. When fired at the apex such a cone will smolder slowly and send up a thin column of pungent smoke not hurtful to man, but stupefying to mosquitoes. In actual experience, two or three such cones burned during the course of an evening have given much relief from mosquitos in sitting rooms. It does not kill the insects, however, and is at best but a palliative. The mosquitos found on ceiling of bed rooms in the evening may be quickly and easily killed by means of a small shallow tin cup (such as the lid of a blacking box) nailed to the

top of a stick and wet inside with kerosene. This cup is placed over the quiescent mosquito, which immediately drops or flies against the oily surface and is killed. But, altogether, the most satisfactory means of fighting mosquites are those which are directed to the destruction of the larvæ or the abolition of breeding places. These measures are not everywhere feasible, but in many places there is absolutely no necessity for the endurance of the mosquito plague. The principal remedies of this class are three: The draining of ponds and marshes, the introduction of fish into fishless pools, and the use of kerosene on the surface of the water.

The draining of breeding pools needs no discussion. Obviously the drying up of such places will prevent mosquitoes from breeding therein, and the conditions of a successful application of this measure will, it is equally obvious, vary with each case.

The introduction of fish into fishless ponds is feasible and advisable in many cases where the use of kerosene on thesurface of the water would be thought undesirable. In tanks supplying drinking water, for example, fish would destroy the mosquito larvæ as fast as hatched. A case is reported in *Insect Life* (Vol. IV, p. 223). where carp were employed in this way with perfect success by an English gentleman living in the Riviera. At San Diego, Texas, the people use for this purpose a little fish, called there a perch, the species of which the writer has not been able to ascertain. Probably, the common voracious little stickle back would answer admirably as a mosquito destroyer.

Probably the best, and certainly the easiest, of wholesale remedies against mosquitoes is the application ot kerosene to the surface of breeding pools. The suggestion that kerosene could be used as a remedy for mosquitos is not new and has been made more than once. Exact experiments out of doors, and on a large scale, were made in 1892 by the writer. These and subsequent experiments show that approximately 1 ounce of kerosene to each 15 square feet of water surface on small pools will effectual y destroy all the larvæ and pupæ in that pool, with the additional advantage that the adult females, not deterred from attempting to oviposit, are killed when they alight on the kerosene-covered water. Ordinarily, the application need not be renewed for a month, though varying circumstances may require more frequent applications in certain cases.

Since 1892 several demonstrations, on large and small scales, have been made of the practicability of this method. Under the writer's supervision two localities were rid of mosquitoes by the use of kerosene alone. It will, however, probably not prove feasible to treat in this way the large sea marshes along the coast where mosquitoes breed in hordes, although, even here the remedy may prove to be practicable under certain conditions, and in certain situations. In inland places, however, where the mosquito supply is derived from comparatively circumscribed pools, the kerosene remedy will prove most useful. In some California towns, we are informed, the pit or vault behind water-closets is subject to flushing with water during the irrigation of land near by. A period of several weeks elapses before more water is turned in, and in the meantime the water in the pit grows stagnant and becomes the breeding place of thousands of mosquitos. Where, as in certain towns and cities, house drainage runs into such a pit, and an outdoor privy with a seldom closed door is built over it, mosquitoes will breed all summer in the fluid contents of the vault, and of course will infest all the adjacent houses.

In such cases a teacupful of kerosene poured into each vault at intervals of a month or less, would greatly decrease the annoyance from mosquitoes, if it did not altogether prevent it. This is a case were the co operation of neighbors is most essential; every householder in a given neighborhood should see that his vault is treated with kerosene regularly and often. The cost is so trifling that it need not be considered.

When, as in the case of many country houses, rain water is collected in barrels or hogsheads, for one purpose or another, mosquitoes may and do breed in numbers in such vessels. If the water as used be drawn from the bottom of the cask, it will do no harm to pour in a little kerosene, since the oil will not be drawn out with the water. At all events, such receptacles should be covered at night to prevent egg laying.

The question what is the best way to cover with kerosene the surface of a pool of some size, is apparently needless, since the operation is obviously simple, but such a question has been asked of the division. Simply pouring the oil from any point of the shore will answer tolerably well, since it will spread itself, but, if for any reason, it is desired to coat the pool rapidly with kerosene, it may be advisable to spray the oil through a spraying nozzle, either from the bank or from a boat. The method of application will vary with each case, but in the class of pools which can be most advantageously treated, namely, those of small size, the oil can be well sprayed by throwing it on to windward with a wide sweep of the arm.

Stock can be fairly well protected from bite of the mosquito by the frequent application of the following mixture:

Two quarts of lard; one quart of kerosene; two tablespoonfuls of coal tar; one teaspoonful turpentine; and one teaspoonful of oil of pennyroyal. Melt the lard and tar together, then add the other ingredients. Apply with a brush, sponge or rag, as may be necessary.

E. P. Niles, *Veterinarian.*

Experiment Station, Blacksburg, Va.

BREED TEST.

The dairy test of breeds at the New England Fair, held at Old Orchard, Main, recently, was as follows:

For the largest quantity of milk in one day from five cows: D. H. Goodell, 1st with Holsteins; George H. Yeaton, 2d with Ayrshires.

For the largest quantity of butter in one day from five cows: George H. Yeaton, 1st with Ayrshires; D. H. Goodell, 2d with Holsteins.

For the largest quantity of milk in one day from one cow: D. H. Goodell, 1st with a Holstein; Stockwell & Gifford, 2d with a Grade.

For the largest quantity of butter in one day from one cow: D. H. Goodell, 1st with a Holstein; Stockwell & Gifford, 2d with a Grade.

The five Holsteins gave 225¾ lbs. of milk, the five Ayrshires gave 197½ lbs. milk. The five Ayrshires gave 8.14 lbs. butter, the five Holsteins gave 7.85 lbs. butter.

C. M. W.

The Poultry Yard.

WINTER FEEDING OF POULTRY.

The season of the year is now at hand when it be comes important for those who desire to have the best returns from their poultry to give attention to the food ration fed to the flock. During the spring and summer months the natural productions of the farm in the shape of grass and clover, are constantly being re newed, and are in abundance. Insect life, also, is in the South always abundant. These two natural feeds supply largely the demand for variety of diet and animal matter. During the late fall and winter these sources of supply largely fail, and must be met by other means. Too many keepers of poultry proceed on the assumption that an abundant supply of corn will meet all the necessities of the case, and feed this grain morn, noon, and night in superabundant supply. The result is, very shortly, cessation of laying, and lazy hens. They become over fat, and a fat hen is never a laying hen. It is hard to convince many of those who keep fowls, that the feed given can have so great an effect on egg-production, but it is, nevertheless, true, and has been verified by numerous carefully conducted experiments. At the West Virginia Experiment Sta tion experiments were carried on for two years, with the object of ascertaining the result of the feeding of a nitrogenous ration to three lots of fowls, and a car bonaceous ration to other three lots. Lots one to three were fed the nitrogenous ration, consisting of wheat, middlings (ship stuff), linseed meal, ground oats, and corn meal, in varying proportions, together with ground fresh meat and bone, whilst lots four to six re ceived carbonaceous ration, of which corn meal was the principal constituent. In addition, all the lots had boiled potatoes, or steamed clover hay, and at night had all the whole grain they would eat up clean, consisting of corn, oats, and wheat screenings, corn predominating for the lots fed the carbonaceous ration. The three lots fed the nitrogenous rations (White Leghorns, Light Brahmas, and Rhode Island Reds), laid 17,459 eggs in the test period. The three lots fed the carbonaceous ration (White Leghorns, Light Brahmas, and Rhode Island Reds), laid 9,708 eggs in the test period. These are per hundred hens. The net profit per hundred hens from the lots fed the nitrogenous ration were $97.90, and from the lots fed the carbonaceous ration the profits were $20.59. In the second test made in 1898–'99, made with four lots of White Leghorn fowls each containing ten hens and one cock (lots one and three, pullets; lots two and four, old hens), lots one and two were fed the nitrogenous ration, and lots three and four the carbonaceous ration. The test covered seven periods of thirty days each. All the lots were fed a mash of ground feed in the morning; lots one and two receiving in addition during the first four periods, meat meal, and ground fresh meat and bone during the remainder of the test. During the periods two, three, and four all the lots were given boiled sugar beets, but as the beets seemed to be making all the fowls too fat, they were dropped from the ration. All the lots were fed at night as much grain as they would eat. Calculated per one hundred hens, the fowls fed the nitrogenous ration laid 7,555 eggs, and those fed the carbonaceous ration 3,431 eggs. These tests would seem to be conclusive as to the value of nitrogenous rations for egg production. The cow peas, mentioned in our last issue as being good for fowls, would come under the head of nitrogenous feed.

LICE.

Carelessness costs most of us a goo l deal of money. The trouble with a great many people is that they do not think until they must. Every one who keeps poultry knows that lice is the special enemy of chicks, and that chicks cannot thrive or even live if they are overwhelmed with lice. But we feel quite sure that more than one will read this article, who have sometimes neglected their flocks until lice fairly swarmed on them. We have had such things in our own experience. Those whose special duty it was to take care of the poultry were careless, and the result was a lousy brood and several dead chicks before we got matters straightened up. One might as well neglect to provide fuel for winter as to neglect to watch for lice, for both are ordinary duties and necessities. The destruction of chicks by lice makes an enormous loss to poultry breeders; and the loss of eggs as the result of permitting these pests to have their way on hens, cannot be computed. And yet attention to the matter will, at least, reduce the ravages of lice to the minimum. The remedies are so often given and so well known that it is hardly necessary to mention them. So far as the house is concerned, cleanliness is an absolute necessity. It is not a bad idea—though some poultry men do not agree with it—to let the poultry roost outdoors in warm weather. If the house is shut up, the lice in it must die, for living lice must have food. If that plan is not adopted, use kerosene freely in the house, fumigate it with sulphur and burning charcoal—when the poultry is out, of course.—*Agricultural Epitomist.*

GOOSE FARMING IN ENGLAND.

One of my friends, a city man, living ten miles out, is strong on goose-farming. Of course geese, along with ducks and other poultry, are kept by the majority of farmers, but not in such numbers as to requre any special attention, though there are a few large goose farmers in England. In Essex, for example, there is an establishment which will have in its pens from thirty thousand to forty thousand birds, getting ready for

the market. The majority of these birds are hatched artificially by incubators, as it is found to be more reliable than brooding geese; although a percentage of incubator hatched birds are always deformed and useless. A bird hatched in May will be ready for the table by October. While fattening, they are kept three in a pen, with room to turn around only, and fed on bruised oats made into a paste with milk; also on curds, whey, boiled barley, old bread and dripping, and, just before killing, on maize boiled in mutton fat. The birds are killed and plucked on the farm before being sent to market, the wing quills going to quill pen-makers and the feathers to feather dealers. Defoe, in his tour through the eastern counties of England, undertaken in 1722, seems to have been greatly impressed with the large droves of turkeys and geese which he met on the way up to London. We read of the Norfolk turkeys coming on foot, in droves of three hundred to a thousand, and in so many droves that by one route alone (and that not the most crowded,) a hundred and fifty thousand birds traveled in one season. Further, he tells us that "within these few years it has been found practicable to make the geese travel on foot too, as well as the turkeys," and a prodigious number are brought up to London in droves from the farther parts of Norfolk, even from the Fen country about Lynn, Downham, Wisbeach, and the Wash; as also from the east side of Norfolk and Suffolk, whence it is frequent even now to meet droves consisting of a thousand or two thousand in number.—I. Bowick, in *Country Gentleman.*

POULTRY ON THE FARM.

Professor Gilbert, of Ottawa, Canada, in answer to the question, Why is poultry valuable to the farmer? gives the following reasons:

1. Because he ought, by their means, to convert a great deal of the waste of his farm into money in the shape of eggs and chickens for market.

2. Because, with intelligent management, they ought to be all-year revenue producers, with the exception of perhaps two months during the moulting season.

3. Because poultry will yield him a quicker return for the capital invested than any of the other departments of agriculture.

4. Because the manure from the poultry house will make a valuable compost for use in either vegetable garden or orchard. The birds themselves, if allowed to run in plum or apple orchard, will destroy all injurious insect life.

5. Because, while cereals and fruits can only be successfully grown in certain sections, poultry can be raised for table use or layers of eggs in all parts of the country.

6. Because poultry raising is an employment in which the farmer's wife and daughters can engage, and leave him free to attend to other departments.

7. Because it will bring the best results in the shape of new-laid eggs, during the winter season, when the farmer has most time on his hands.

8. Because, to start poultry-raising on the farm, requires little or no capital. Under any circumstances, with proper management, poultry can be made with little cost a valuable adjunct to the farm.

NO EGGS WASTED HERE.

With the produce man the subject of waste or loss from unsalable products is an important one, and a matter that makes a material difference in profits. Ordinarily, there is little provision against heavy loss in many lines, and the egg trade shares its portion of the loss. As showing what may be done where the facilities are at hand, it is interesting to note the extreme limit of waste on eggs as handled by a big packing house. The Armour Packing Company has at Kansas City the best storage rooms for all classes of produce—butter, eggs, poultry, fruits, etc.—in the West, and the equal of any in the world. There are so far fifteen to twenty cars of eggs in storage in the Armour plant, almost all owned by Kansans. When eggs are put in coolers by most people there is material loss to be reckoned on. There are the seconds, cracked eggs and "rots" to be thrown out with little or no chance of anything but entire loss. Things are different at the packing-house. All of its small, dirty and cracked eggs that are fresh and of good quality are canned. They are put up the same as canned meats. The yolks and whites of the eggs go into separate cans, and this product is shipped all over the country and is a great convenience in hot climates. When a baker has use for whites of eggs he can just buy what he needs put up in these cans, which saves him the loss resulting from buying eggs as they are ordinarily sold. The quality of this canned product is fine. Then the rotten and cloudy eggs are put up in cans and sold to tanners and used in putting the gloss on fine leather. The "rots" serve the purpose of the tanners and can be bought cheaper. The shells are used in making fertilizers, etc, so that the loss is indeed small. When it is remembered that the small things count up fast in making losses or profits, the value of the economy here practiced becomes apparent.—*Kansas City Packer.*

COMPARISON OF BREEDS.

Which breed is the best for certain purposes? A Scranton, Pa., reader desires to try the best breeds to produce table poultry and asks several questions as follows:

"How do the Plymouth Rocks, Wyandottes, and Langshans compare to each other in rapidity for growth, form, and table qualities (I mean quantity and quality of meat) up to the weight of four or five pounds?

"Will Dorking, Indian Game, or Houdan males make the best cross on the above breeds (or any one of them) for choice table in form, appearance, and quality to the above mentioned weight? Should you you say the Dorking which variety of that breed?

"How does the Langshan compare with the Plymouth Rock in laying qualities?"

Of the Plymouth Rocks, Wyandottes, and Langshans the latter breed probably is the more rapid grower and is also the better table fowl. The objection to it is the dark legs and black plumage, but they dress white.

We prefer the Indian Game as a first cross with Langshans and Dorkings, with Plymouth Rocks or Wyandottes, the Colored Dorking being usually preferred. The Houdan is also excellent, especially if good laying pullets are desired.—*Poultry Keeper.*

The Horse.

NOTES.

The recently formed circuit of Virginia and North Carolina fairs and race meetings, beginning at Norfolk, Va., on October 2d, continuing for five weeks, should furnish sport and pleasure galore to many thousands of those extending their patronage. Norfolk follows right along after the Eastern Maryland and Delaware circuit, which closed at Baltimore during the past week, and the scene begins on Tuesday, the 2nd instant, with the opening of the gates of the Virginia State Fair, which lasts four days, and then the cohorts drift to North Carolina soil, where the fair and races of the Central Carolina Fair Association begin on the 9th instant and close four days later. The Alamance Fair Association at Burlington then falls into line, and its fair and races will attract a good attendance daily. Following Burlington comes the annual fair and race meeting of the North Carolina Agricultural Society, at Raleigh, and during the week of the 22d to 27th the scene at the Capital City of the old North State will be one of rare attractiveness, and tens of thousands will throng its streets daily. Winston and Weldon come after Raleigh, and their dates, October 30th to November 2d conflict, but as the two places are in different sections and some distance apart, it is not likely that the clash of dates will be felt to any extent by either association. The week after Winston and Weldon has not been taken, but on November the 13th the meeting of the East Carolina Fish, Oyster, Game and Industrial Association begins at New Berne and last four days, and with it the circuit closes. At each of these thousands of dollars will be hung up in premiums and purses for exhibits of live stock, agricultural and mechanical products and contests of speed between numbers of well known trotting, pacing and running horses, which affords pleasure, recreation and change of scene to a large concourse of people of all classes.

Mr. J. B. Andrews, of Charlottesville, Va., who for years past has made a specialty of buying and shaping up high class horses and disposing of them on the Northern markets, has now turned his attention to breeding also, and has at the head of his stud the hackney stallion Nightingale, 2:20, a six-year old chestnut horse of pleasing conformation and good manners. In addition to six trotting bred mares of the proper conformation for such a cross, which have been mated with Nightingale, Mr. Andrews also owns the thoroughbred mares Theora, a bay foaled 1891, by Dry Monopole, dam the Jilt, by Glenmore, who dropped a bay filly in the spring by Nightingale and was bred back; Runaway, a bay foaled 1887, by Algerine, dam Belle of Eltham, by Victorious, who also dropped a bay filly in the spring by Nightingale and was bred back. One of the best looking youngsters on the place is a bay filly, two years old, whose dam, a thoroughbred daughter of Powhatan, died when she was two years old. This filly was sired by Axworthy, 2:15¼, as was the bay filly of the same age out of Runaway. In the spring of 1901, when three-year-olds, it is the intention of Mr. Andrews to breed these Axworthy fillies to Nightingale, and the cross should be productive of good results.

Mr. W. S. Southall, of Elkton, Va., an old subscriber to the *Planter*, has branched out as a breeder of fancy gaited saddle horses along with Major George Chrisman, the Herring Brothers, and other prominent and well known farmers in the far famed "Valley of Virginia." Mr. Southall owns Ora D., by Forest Denmark, dam Sallie, by Roscoe, second dam Lady Legrand, by Mambrino Legrand, who has a handsome bay colt, foal of 1900, at her side, by General Miles, and is again in foal to that elegant looking stallion that made such a grand showing at the Harrisonburg Horse Show in August and carried off the blue ribbon in his class. The bay filly Minnie V., by Woodford's Cripple out of Ora D., is also owned by Mr. Southall, who exhibited her at Harrisonburg, and her beauty of form and high finish attracted much attention. Recent purchases by Mr. Southall include the prize winning mare Nannie Monday, an elegant looking daughter of Forest Denmark and Nannie Monday, by Roscoe, the son of Blue Jeans. Nannie Monday is one of the finest combined saddle and harness mares in the Valley of Virginia. She is in foal to General Miles, and the produce should be fit for any show ring in the country.

Captain John L. Roper, of the Foxhall Farm, Norfolk, who for more than a decade past has been one of the most liberal patrons of the trotting horse in Virginia, is well pleased with the showing made in 1900 by the get of his stallion Great Stakes, 2:20, the son of Beverly Wilkes and Sweetsakes, by Sweep Stakes. Great Stakes is the premier sire at Foxhall Farm, and he is represented on the turf this season by Foxhall, 2:19¼, a chestnut gelding whose dam was by Norfolk, the sire of Miss Nelson, 2:11½; Gypstakes, 2:23¼, the roan mare out of Gypsey, by El Mahdi, and W. H N., 2:24½, a bay gelding out of a mare by Lyle Wilkes. In addition to these there is the fast bay gelding Little Stakes, 2:24¼, who is much faster than his record, which was earned in 1899, indicates, and is likely to trot close to 2:15 when right and fit.

Among the brood mares at Foxhall are Sweet Stakes, the dam of Great Stakes; Lady Kenton, by Hambletonian Mambrino, out of Our Mary, by Lelaps; Jessie Stamboul, the dam of Clesimtay, 2:17¼, by Stamboul, out of Astrione, by Alcyone, second dam famous Jessie Pepper; S. E. S. Frances, by Muscovite, out of Venus, dam of Monoeye, 2:30, by Conger; Racket, the dam of Red Boy, 2:27, by Red Wilkes; and Mime, by Eagle Bird, out of Cleta Wilkes, by Wilkes Boy. Mime dropped in the spring a grand looking bay filly by the famous Allerton, 2:09¼, and was bred to Great Stakes, whose stud companion at Foxhall is the young stallion Foxhall McGregor, a three year old bay son of Robert McGregor, 2:17¼, and Cleo, 2:19½, by Gambetta.

Among the trotting bred animals on the farm of Mr. Leonidas Triplett, near Mt. Jackson, Va., are the aged chestnut mare Aconite, dam of Prince Nuttingham, 2:20¼, by Tremont, out of Belladonna, the dam of

Mercurious, 2:22½, by Woodlawn, and her three year-old daughter, the handsome bay filly by Kelly, 2:27. Mr. Triplett also has a fine looking yearling chestnut colt, full brother to Napelline, while last spring Aconite was bred back to Kelly, who is a full brother to that greatest of three-year-old campaigners, Expressive, 2:12½, by Electioneer, out of the famous Esther, the thoroughbred daughter of Express.

Captain R. J. Hancock, of the Ellerslie stud, Charlottesville, Va., has purchased in England the bay horse Fatherless, ten years old, by Isonomy, out of Orphan Agnes, by Speculum, second dam Polly Agnes, the grand-dam of Ormonde, by The Cure, third dam Miss Agnes, by Irish Birdcatcher. Fatherless won the Prince of Wales plate and the great Metropolitan stakes, two and a quarter miles, beating fourteen horses. He also has a record of the fastest one and three-eighths miles ever run in England. Fatherless will succeed imported Charaxus in the Ellerslie stud. The latter is twenty-five years old, but is a remarkably well preserved horse, and nearly every mare served by him this season appears to be in foal. Captain Hancock does not intend to hurry Charaxus off the stage, but will let Fatherless come on by degrees, as the latter will not be permitted to serve over ten or twelve mares in 1901, in order that he may be given time to rest and recuperate after a career, just closed, of nine consecutive seasons upon the turf. Captain Hancock's son, who was in England this summer, made the purchase of Fatherless. Ellerslie was the home of the dead Eolus, who ranks among the most famous of American stallions, and from his loins, while there, some great race horses came, and many of his choicest daughters are owned on the place, and mated with these, there is little doubt but that Fatherless will prove a great sire.

Richmond is to have an old time fair and race meeting again this fall, and with it will be combined a grand tournament. It will be held under the auspices of the Farmers' Fair Association, of which Mr. Felix Jones is the secretary, and Lee Todd, assistant secretary, and manager of the tournament, which will be made a special feature of the occasion. This fair and tournament will be held at the old Fair Grounds, and will last five days, beginning on Monday, October 22d, and closing the following Saturday. The speed programme as arranged will include purses for trotters, pacers and runners, and should furnish some good sport.

Mr. George B. Finch died at his home at Boydton, Va., and was buried at Union Level, near by. He was a gallant Confederate soldier, and served with distinction at the famous battle of Gettysburg, where he was severely wounded. After the war he studied law, and later practiced his profession with success and became prominent in legal and banking circles and amassed a considerable fortune. Possessing a memory of remarkable retentiveness and a natural love for horses, he became a student of pedigrees and bred trotters for a number of years to a limited extent. Among the trotting-bred horses owned by him was the handsome stallion Chestnut, the son of Norfolk, and Easter, grand-dam of Edgemark, 2:16. About fourteen years ago Mr. Finch was married to Miss Alice Marrow, who survives him.

BROAD ROCK.

THE BREEDING OF "ZEBROIDS".

The experiments conducted by Prof. Cossar Ewart at Pennicuik, near Edinburg, Scotland, in mating pony mares to entire zebras, have commanded much attention since their inception, but it is open to question whether the original object has not been of late rather lost sight of in the interest which has developed as to whether the progeny of the mare and zebra can be made commercially useful. Of late the parent stock of mares and zebras with their hybred progeny have been exhibited in Edinburgh by Prof. Ewart, and great crowds of laymen and scientific workers have eagerly embraced the opportunity to study the strange animals. As a type the Burchell's zebra is assuredly superior in his present unimproved condition to the ass in most of his forms. Indeed, there are plenty of men who have visited and resided in South Africa who are not slow to maintain that Burchell's zebra, just as he is in his wild state and altogether "unimproved," is of a much higher class in every way than the finest Catalonian, Maltese, or Poiton ass. Be this as it may the fact remains that the zebra approaches more closely the horse in his formation and disposition than the ass does, and if we accept the horse as the finest member of the genus equus, we must then accord the second place to the zebra. We do not admit this, for the reason that we are not sufficiently informed on the subject to give an opinion, but if the statements made are correct then the reasoning is logical and the conclusion unassailable.

One great point in favor of the zebra as a getter of hybrids was scored by the Baron de Parana, of Brazil, whose operations in breeding zebroids (as he called the hybrids) were detailed and illustrated by Secretary James Wilson in the last Year Book published by the Department of Agriculture. The Baron alleges that on his plantation he has use for stout, quick-moving animals capable of enduring severe work under an intensely hot sun, and he believes that the zebroid will in time supplant the mule of to-day. The illustrations given in the Year Book of these hybrids indicate the production of a most attractive animal, pleasingly colored and striped and of very good size. Baron de Parana states that the zebra proves a sure foal-getter if placed with his mares at the right season of the year, and that the foals are remarkably hardy and easy to rear. He says that, as in the case of mules, the heavier the mare the heavier the zebroid, and vice versa, while finely bred mares produce progeny that is very attractive in its graceful outline and easy movement. It has been established that the available supply of zebras of the Burchell sort is quite large enough to be drawn on for a number of males sufficient for the breeding of hybrids with them to be entered on on a commercial scale, and it is extremely likely that if Baron Parana's experiments prove in the end as satisfactory as they promised it will not be long before the Brazilian planters will supplant the mule with the zebroid. This is an interesting subject, in that the adoption of the zebra as a mule-getter was predicted almost a century ago by the naturalist Bewick.

Miscellaneous.

GOOD ROADS FOR THE SOUTH.

The long continued hot, dry weather has done for Virginia and the other Southern States what these States have never yet shown any disposition to do for themselves—made good, passable roads. If we could only have a wet, showery summer, when the roads would never have the opportunity to become dried out and compacted after the winter rains, we believe it would do more to impress upon our people the importance of road improvement than anything we can say or do. Shortly we shall have the people complaining everywhere that the roads are impassable, and just when this condition has almost exhausted their patience and got them into a frame mind to make an effort to help themselves, a change of weather will happen and at once they let the subject drop and rely on help from Providence. This road question in the South is very much like the hole in the roof of the old darky's cabin; in winter it was too wet to mend it, and in summer it was so comfortable to have the air blowing through the hole that there was no desire to do so. And yet the condition of our roads is the one most powerful reason why we do not succeed in inducing people from other States and countries to come and make their homes among us. With good main roads through our counties, communicating with the market cities and towns of the State, we should soon see such an influx of people as would enhance the value of every acre of our lands, and make the cost of building such roads even less burdensome than is the present cost of so-called maintenance of our existing roads.

Practically, every dollar spent now is wasted; at the end of the year the roads are in no better permanent condition than at the beginning, and so year after year the outlay continues. Nothing permanent is done, and nothing remains to be seen for the money collected and expended. We have repeatedly pointed out the way to save this waste and secure good roads, but have never yet been able to secure such a weight of public opinion in favor of progress as to ensure action. One of the great stumbling-blocks in the way is the position taken up by the cities and towns. These, representing practically one-half of the taxable value of the State, refuse to bear any part of the cost of making roads to connect them with the country districts which are their markets. It is a grossly unjust position to take. Good roads in the country would benefit the cities and towns quite as much as the country districts, and the cost of making them should be equitably borne by country and town. This has been realized and acted upon wherever good roads have been made, either by the national government bearing the cost of making the roads and thus distributing the burden over all the people of the nation, or by road districts being formed, such districts comprising the city or town, or cities and towns benefitted together with such an area of the surrounding country as is identical in interest with the cities and towns, and making this district a taxable area over which uniformity of taxation for road purposes is in force. With the adoption of this principle here we could have good roads, as the share of the burden would be one which could be easily carried by the farmers. Without it or some other like equitable distribution of the cost, we see no prospect of good roads for this or other Southern States. This is a subject which should engage the attention of the coming Constitutional Convention, and it would be well for farmers to press it upon the attention of candidates for seats in the convention. Either the State should be empowered and required to raise loans for road-making purposes, the burden of these to be borne by city and county equally, or it should be imperative to create road districts with equal liability of taxation over the whole district.

SIR JOHN BENNETT LAWES, BART.

It is with deep regret that we announce the death, on August 31st, of Sir John B. Lawes, of Rothampstead, England, at the age of nearly 86 years. Sir John B. Lawes was the Father of the agricultural experiment stations of the world, and ranked easily amongst the first of the world's investigators into the scientific problems affecting agriculture. His reputation was world wide, and justly great. He was the son of a country gentleman owning a fine estate in the county of Hertford, in England, and succeeded to the property on the death of his father, in 1834. Being of a scientific turn of mind, he at once commenced experiments on the home farm of 250 acres, and these led, in 1842, to the taking out of a patent for treating mineral phosphates with sulphuric acid, which was the foundation of the great trade in commercial fertilizers which has since that time been so largely developed. In 1843, he associated with himself Dr. (now Sir) Henry Gilbert, a pupil of Liebig, the great chemist, and the foundation of the Rothampstead Experiment Station dates from that time. This station antedates that of any other experiment station in the world, and is singular also in the fact that from the date of the foundation down to the death of Sir John Lawes it

has been conducted entirely under the direction of the two men who established it. For the long period of nearly 60 years these two men have labored together to advance the interests of farmers all over the world, and together have done more to "make two blades of grass grow where only one grew before" than any two men anywhere else in the wide world. The continuity in management of the experiments has done more to enhance their value than can ever be estimated, and should be fraught with lessons to be taken to heart by boards having control of experiment stations in this country where too often the cloven foot of politics is allowed to interpose obstacles to the continuous work of some of the ablest investigators at our stations. In another way other than its age the Rothampstead Station is singular in its character. It was founded, maintained and carried on at the sole cost and charge of Sir John Lawes from its inception to the day of his death; and not satisfied with this self denying use of his wealth, he a few years ago transferred the experiment farm and the laboratories and all appliances to trustees upon trust to continue the work he had so long carried on, and gave to them the sum of $500,000 wherewith to enable them to execute this trust for all time. The farmers of England, in 1854, recognized the great work Sir John Lawes had done for them by raising a large sum of money to be presented to him, but he declined to receive it except as a means of providing further and better facilities for conducting the work. Acting on this determination, the fund was devoted to the erection of a fine and completely equipped laboratory on the experiment farm, and so it now remains in the hands of the trustees for the benefit of those who subscribed and their descendants. In 1893, the jubilee year of the Experiment Station, a fine oil painting of Sir John Lawes was presented to him, and a granite memorial was erected on Harpenden Common to commemorate the completion of 50 years continuous experiments. In 1882, the great work of Sir John Lawes was recognized by the Queen of England, who then created him a baronet. In concluding this brief sketch of the career of this eminent friend of the farmer, we feel that we may without hesitation on be half of the farmers of the South extend their sympathy and condolence to the son of the deceased. Educated American farmers have always been ready to recognize the debt they owe to Sir John Lawes. One of them, visiting Rothampstead several years ago, said to him when inspecting the wheat field: "Americans have learnt more from this field than from any other agricultural experiment in the world."

When corresponding with advertisers mention the *Southern Planter*.

COLONEL RANDOLPH HARRISON.

It is a matter of sincere regret to us to have to announce the death of Colonel Randolph Harrison, which occurred on the 14th of September, at his residence, Ampthill, Cumberland, Va. Colonel Harrison was a true representative of the old type of Virginia gentleman—courteous, scholarly, and the soul of honor, a gentleman in the highest and truest sense of the word. He was a gallant soldier in the war, and in peace one who ever strove to advance the interest of his native State. After the war he took office under the State government, and was the first Commissioner of Agriculture for the State. This office he held for a number of years, until defeated of re-election by Colonel Thomas Whitehead, the late commissioner in 1889. He owned and farmed a fine plantation in Cumberland county, and was a diligent student of scientific agriculture. For many years he was a frequent contributor to our columns, and always told something worth telling, and told it in a way to interest and instruct his readers. Of late years he has been a great sufferer from the effect of wounds received during the war, and from defective eyesight, and consequently had been unable to do much literary work. We extend our sympathy to his relatives.

THE SUGAR BEET INDUSTRY IN VIRGINIA.

At one time we thought it possible that beet sugar production might become one of the industries of the State, and encouraged the planting of the beet on an experimental basis. As the result, however, of numerous tests made of the beets grown in various sections of the State, we became convinced that it was not wise to continue to endeavor to arouse interest in the subject, and for the past two years we have not pressed the question on the attention of our readers. We are confirmed in this view of the question by the report of Dr. Wiley, of the Department of Agriculture, who, in his report on the progress of the beet sugar industry in 1899, makes the following remarks on Virginia beets:

"The samples received from this State were not encouraging to the belief that a successful sugar-beet industry can be established therein. There are, doubtless, many localities, especially in the mountainous regions, where exceptionally fine beets can be grown, but taken as a whole the State cannot be regarded as among those where the future will see a successful beet sugar industry established.

Six samples from Virginia showed beets of average size, but with quite low content of sugar and low purity.

Except in the elevated plateaus of Virginia, it is not to be expected that beets can be successfully grown."

TIDEWATER (VA.) NOTES.

Editor Southern Planter:

August, just passed, gave us 3.37 inches of rain, distributed, in nine showers, following 6.51 inches of rain fall in July, and has enabled us to tide over the unprecedented and disastrous drouth without serious loss. July and August combined gave us nearly 10 inches of rainfall, distributed on 16 different days.

From various sources we learn that the drouth has been very disastrous over large portions of the State. Our exemption here is due to our great forests and our greater bodies of water surrounding us on all sides.

The timber is being stripped rapidly from the interior, and the forest fires are sweeping more and more over the country. The plowing, too, is very shallow, and much of the land is uncovered instead of growing a crop of grass and grain.

Our people must meet the issue. It is an "Imperial" issue, too. The forests must be preserved and protected; there must be more stock; the ground must be more deeply and thoroughly cultivated; and the face of the earth must be kept covered largely by vegetation. It is said in philosophy that "nature abhors a vacuum," so, too, does nature abhor a baldheaded piece of land in midsummer.

The farmers in the interior of the State have a big lesson to learn, and they must learn it quickly and govern themselves accordingly. They cannot all get office and fatten from the earnings of their fellows; but they must give a legitimate return for a living, else the living will be withheld. Some attention must be paid to "cause and effect."

Our farmers and truckers here are about through planting the fall crops of peas and beans (snaps), which will be ready to send North about 1st of October. These crops follow other crops on the same land the same season. These crops will be followed by others later this fall or very early in the spring.

While much of the land in the interior is not cultivated enough, or not cultivated at all, our trucking lands often get too much of it. The "fertilizer spur" is applied and the soil is made to "tote twice or thrice" each year.

As the human system demands a change of diet and occupation now and then, and as the stock on the farm thrive better with a well balanced ration and a change of food occasionally, just so our land requires a rest and a change of crops or occupation.

It is a picnic to raise a crop of peas and beans in the fall. The soil is warm and mellow, and the seed planted comes up very quickly and makes a rapid growth, so rapid that only one cultivation is required. The yield of fall peas is from 50 to 75 baskets per acre. Beans yield more, often reaching 200 or more half-barrel baskets to the acre. The price record ranges from 75 cents to $2.50 per basket.

The baskets cost seven cents each, and hold not quite five pecks. The freight on a basket to Baltimore and Washington is eleven cents. To New York and Philadelphia the freight is thirteen cents. The prospect for trucking is not very good. It is not encouraging enough for new people to engage in it, or for the old ones to enlarge operations. But if our truckers will reduce acreage one half or two-thirds, and put the released land into other crops, they will make more money, live easier, and be happier.

Norfolk, Va. A. JEFFERS.

MUTUAL FARMERS' CLUB OF FREDERICK COUNTY, VA.

Report of Meeting.

By invitation of Mr. L. M. Boyer, the Mutual Farmers' Club met at his residence September 1st.

The President called the meeting to order at 10:40.

Thirteen members responded to the roll-call, and satisfactory reasons were given for the absence of Wm. E. Branson, Jonah L. Reese, Edward W. Lupton, and Edward L. Irish.

Minutes of last meeting were then read and approved—after one correction.

The President read the criticism on J. L. Bond's farm.

Lewis Pidgeon, D. P. Lupton, and Lewis Boyer were appointed as a committee to suggest questions to the next meeting.

At this juncture, there was a spirited discussion on the subject of trusts.

Under the head of unfinished business, the question referred to E. W. Lupton was continued.

The first subject on the programme, which had been referred to J. W. Branson, "To what extent can a farmer apply commercial fertilizer to grass land," was taken up.

Mr. Branson thought that the benefit to be derived would depend largely upon a good season. He also spoke of the common practice of sowing plaster some years ago with good results.

Dinner was then announced, and the Club adjourned.

After this pleasant repast (which spoke well for our hostess' ability), and reviewing the farm and premises, business was again resumed.

The next question, "At present prices, would it not pay the farmer to raise more hogs?" was answered by H. S. Lupton, who thought that the raising of hogs for profit is, in some respects, a difficult task, and that there were many things to consider—among which are plenty of corn and pasture. In a general way, where there is good range and good management, the raising of hogs pays.

The next question, "Bearing in mind the serious drouths of the last few years, will it pay to experiment with alfalfa," was referred to L. Pidgeon. He seemed to doubt if such experiments would prove profitable.

D. W. Branson read an article on the "Successful growing of Alfalfa in Colorado." Three crops from the same ground of from four to six tons per acre is the regular thing there.

The Committee on Questions reported as follows:

1. Should the farmer in this section sow rye or some other crop for the exclusive purpose of a cover crop during winter? Referred to S. L. Pidgeon.

2. Will it pay the Virginia farmer to use improved corn harvesting machines? Referred to H. M. Bond.

3. Give a remedy for the attack of the Texas fly. Referred to Dr. T. Y. Brown.

Under the head of miscellaneous business, the question of cutting rag-weed and fox-tail was discussed, but not favored by a majority.

D. W. Branson then read an article on the "Oleo and the Grout Bill."

There being no other business before the Club, the Club adjourned to meet at "Thalhein," the residence of Lewis Pidgeon, at the call of the officers.

HOWELL M. BOND, *Secretary pro-tem.*

THE

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PUBLISHERS' NOTES.

A Twentieth Century Offer.

We will send the Planter from receipt of subscription to the end of the year 1901 for 50 cents to all who are not now subscribers who will remit us that amount, thus giving them the rest of the current year free. We make this offer in order that we may set going a movement which we intend to follow up vigorously, and which we expect will result in our adding at least 5,000 new names to our list of subscribers in the first year of the New Century. We intend to make the new century the starting point of the most prosperous period in the life-history of the *Planter*. For over 60 years, the *Planter* has been a regular visitor to the homes of the most prosperous farmers of the South. We intend that it shall now go into the homes of *all* the farmers, so that they may *all* become prosperous. For 50 cents—one cent a week—any one can get it, and no one can say that he cannot afford to take it at that price. One old hen will pay for it twice over in the year besides keeping herself. There is no reason why it should not be in the hands of every farmer in the South, and if so, every farmer would, if he followed its advice, be a richer man every year. Let the boys have it, and learn what is the newest and best system of farming.

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MAGAZINES.

It is safe to predict a great demand for the October *New Lippincott*, owing to the fact that it offers a splendid novel by Joseph A. Altsheler and two long stories by Edith Wharton and Mrs. Schuyler Crowninshield. In addition to these special attractions, there are other stories bound to please, and timely papers by well-known pens.

Mr. Altsheler's novel, entitled "My Captive: A Tale of Tarleton's Raiders," is a stirring romance, vigorously treated. The "Captive" is the daring daughter of a British officer who gives considerable trouble to her captor, a member of the gallant Morgan's band. She leads him a chase which ends in the capture of the captor's heart. There is adventure galore hairbreadth escapes, and one particularly taking situation in which the girl has a fine chance to show the stuff of which she is made. The tale is quite equal to those that have gained for the author a reputation abroad as well as in this country.

"The Line of Least Resistance," by Edith Wharton, is the heart story of a husband whose wife regards him simply as the means to an end. The "end" is a Newport villa and unlimited freedom for herself. This works for a while, but there comes a day of reckoning. Mrs. Wharton's clever half satirical style well fits her subject, and does not fail to indicate a humorous side to the dark picture.

Mrs. Crowinshield's story, called "For the Señora," is a touching sketch of a magnificent sacrifice. Tété, a little Cuban boy, said he knew he "was good enough to live but not quite good enough to die," and when danger threatened a beautiful woman who had been kind to him, he gave up his life for hers without hesitating a moment.

An unusual and beautiful story by Mabel Nelson Thurston, is "A Secret Holiday." The heroine "never had a chance to choose her life," and when the opportunity comes to do just what she pleases, she spends the precious hours in a manner unique and characteristic.

The *Ladies' Home Journal*. "The Story of a Young Man," by Clifford Howard, Elizabeth Stuart Phelps' new novel, "The Successors of Mary the First," "A Story of Beautiful Women," "Blue River Bear Stories," by the author of "When Knighthood was in Flower," are all begun in the October *Ladies' Home Journal*. "Romances of Some Southern Homes" gives some glimpses of social life in the South before the war, and "The Longings of a Secluded Girl," and "A Minister Among the Cowboys," tell of achievements in face of obstacles. Edward Bok sharply criticises the Pullman Palace Car Company for the exhibition of bad taste displayed in the decoration of its cars, which misleads the uncultured in decorating their homes. "An American Mother" writes on "How We Can Lead a Simple Life," and "A Minister's Wife" enters a protest against the criticism to which the clothes of a minister's family are subjected. There are three architectural features in the October *Journal* which will interest home workers: One presents the plans in detail of "A Georgian House for $7,000," and another, those of "A Good Farmhouse for $3,500," and the third shows "A Successful Country Home" in the northwest, of log construction. There are also a number of practical articles. By The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

St. Nicholas is an excellent number in its October issue. The short stories are all just such as will interest the little ones and inspire them with a desire to read, whilst at the same time they instill good, sound principles and morality, and this without being "goody-goody" or mawkish. It is the best magazine for children published.

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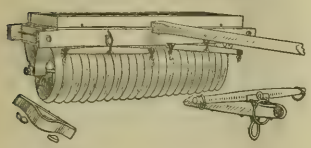
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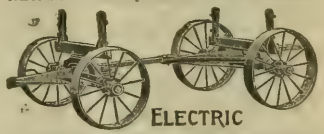
The Forum has a number of most excellent articles in the October issue, on the prominent issues of the day, amongst these will be found, "The Paramount Issues of the Campaign," by Senator Dolliver; "Why Cuba Should be Independent," by the Rev. C. W. Currier; "Is a Timber Famine Imminent," "The Future of China and of the Missionaries," by Charles Denby, late Minister to China; "Imperial and Colonial Preferential Trade," by the Hon. John Charlton; "The British General Election," by Henry W. Lucy; "The Negro Problem in the South," by the Hon. O. W. Underwood; "The Atlantic Union," by Sir Walter Besant.

The Century. The situation in the Far East is still a question of paramount importance throughout Christendom, and the October *Century* throws some very helpful lights and sidelights upon it. Most novel among these is, "A Plea for Fair Treatment," by Wu Ting Fang, Chinese Minister to the United States. Few if any representative of his race have Minister Wu's wide knowledge of the two worlds now in conflict on Asiatic soil, and still fewer have the ability to express their views in logical and vigorous English. Mr. Wu's terse and suggestive plea for fair treatment and forbearance is strongly reinforced by Bishop Potter, whose "Chinese Traits and Western Blunders" shows that on his visit last winter he took to China an open mind as well as open eyes. No less significant is a paper by Sheridan P. Read, formerly U. S. Consul at Tientsin, on "The Chinese as Business Men," in which the opinion is expressed that the present disturbing elements, both popular and official, would have yielded, even without foreign intervention, to conservative pressure from the Chinese merchant class and its following. Sidelights on the present position of affairs abound in "China's Holy Land," by Ernst von Hesse-Wartegg, a profusely illustrated account of a visit to the tomb of Confucius, and in "Chinese Education" (also illustrated), by Ramyn Hitchcock; and of special timeliness in the same connection is an editorial on "International Hatred."

Gov. Roosevelt's essay entitled, "Civic Helpfulness," written before his nomination to the Vice-Presidency ,points out what is being done by individuals and institutions, other than official, to help the weak and unfortunate in American communities, the writer commenting on social subjects with his usual vigor. Sir Walter Besant continues in "East London Types" his picturesque studies of slum life in London, with pen-sketches by Joseph Pennell and L. Raven-Hill. The fourth and concluding budget of Dr. William Mason's "Memories of a Musical Life," teems with anecdotal reminiscences of Raff, Rubinstein, von Bulow, and Paderewski, and of the violinists Vieuxtemps, Ole Bull, Wieniawski, Wilhelmj, Joachim, and Remenyi. In Miss

Labor Saving Conveniences.

Success on the farm to-day is largely proportioned to the saving of time and labor—which means economy of production—and not higher prices for farm products. Probably no single machine or appliance saves in the aggregate so much time and hard labor as the modern low down handy wa on. Take for instance



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Runkle's adventurous romance, "The Helmet of Navarre," Felix Broux undertakes a mission which proves to be full of peril, and finds and makes friends with the heroine in strange circumstances. Dr. Mitchell's "Dr. North and His Friends" is concluded, and there are short stories by Virginia Frazer Boyle, "The Child Perpetual," with a picture by Potthast; by Annie Steger Winston, "Mr. Grigsby's Way, with a picture by Keller; and by Ellis Parker Butler, "The Hanging-On of 'By Jocks,'" with pictures by Steele.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Report No. 64. Field Operations of the Division of Soils, with Maps.

Experiment Station Record, Vol. XI, No. 11.

Experiment Station Record, Vol. XII, No. 1.

Division of Entomology. Bulletin 24. A List of Works on North American Entomology.

Office of Public Road Enquiries. Progress of Road Building in the United States.

Office of Public Road Enquiries. Circular 34. The Social, Commercial and Economic Phases of the Road Subject.

Office of Public Road Enquiries. Circular 35. Road Improvement in New York.

Farmers' Bulletin 119. Experiment Station Work, XV.

Crop Reporter, September, 1900.

Report on the Progress of the Beet-Sugar Industry of the United States in 1899.

Arizona Experiment Station, Tuczon, Ari. Bulletin 34. Timely Hints for Farmers.

Bulletin 35. Vegetable Growing in Southern Arizona.

California Experiment Station, Berkley, Cal. Bulletin 130. Preservation of Unfermented Grape Must.

Florida Experiment Station, Lake City, Fla. Bulletin 55. Feeding with Florida Feed Stuffs.

Louisiana Experiment Station, Baton Rouge, La. Bulletin 61. Rice.

Maine Experiment Station, Orono, Me. Bulletin 66. Fertilizer Inspection.

Maryland Agricultural College, College Park, Md. The Quarterly.

Mississippi Experiment Station, Agricultural College, Miss. Bulletin 62. Varieties of Cotton.

Bulletin 63. Inoculation of Soils.

Nebraska Experiment Station, Lincoln, Neb. Bulletin 66. Sheep Feeding Experiments.

Bulletin 67. Experiments in the Culture of the Sugar Beet.

North Carolina Experiment Station, Raleigh, N. C. Bulletin 172. The Digestibility of Some Non-Nitrogenous Constituents of Certain Feeding Stuffs.

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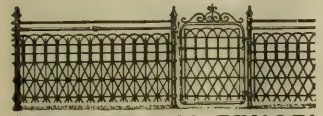
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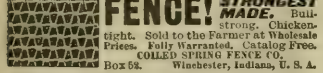
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A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

Journal of the Columbus (Ohio) Horticultural Society, June, 1900. H. C. Price, Secretary, Columbus, O.

Rhode Island Experiment Station, Kingston, R. I. Analyses of Commercial Fertilizers.

Tennessee Experiment Station, Knoxville, Tenn. Bulletin, Vol. 13, No. 2. Experiments with Winter Wheat.

Virginia Section of Weather Bureau, Richmond, Va. Report for August, 1900.

West Mississippi Agricultural Mechanical and Live Stock Exposition, Vicksburg, Miss., November 13 to 17, 1900. Frank H. Andrews, Secretary, Vicksburg, Miss. List of Premiums, etc.

Sixth Annual Report of the Southern Railway Company. Year ended June 30, 1900.

CATALOGUES.

Peter Henderson & Co., 35 Courtland street, New York. Autumn Bulb Catalogue, 1900.

Continental Plant Co., Kittrell, N. C. Fall and Winter Catalogue of Strawberries, etc.

Pinehurst Nurseries, Pinehurst, N. C. Catalogue of Conifers, Palms, Trees, Shrubs, Herbaceous Plants.

PAMPHLETS.

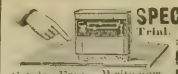
The Other Side. A brief account of the development of industrial organizations in the United States and a study of the advantages that capital, labor and the consuming public derive from them. By Lyman Horace Weeks, National Publishing Company, St. Paul Building, New York.

Momentous Issues. Proves that free coinage of gold and silver will produce solid, continuous prosperity (not the present soon-over-easily scared prosperity). By T. W. Wood, Wood Publishing Company, Box 359, Richmond, Va.

We notice with pleasure the advertisement of George Webster, of Christiana, Pa., elsewhere in this issue. Mr. Webster will be remembered as the manufacturer of the celebrated Convex Dishorner, the firm having been formerly Webster & Dickinson. Some months ago Mr. Webster purchased his partner's entire interest, and now is sole owner of the business. A very convenient feature of his sales department is the branch in Chicago from which Western orders are filled. All orders, however, go to Christiana as heretofore. Mr. Webster is advertising several special appliances—one a Calf Dishorner and another his Bucker Stock holder—a most effective aid to proper disborning. It is to the interest of every breeder of cattle to correspond with Mr. Webster and get his catalogue.

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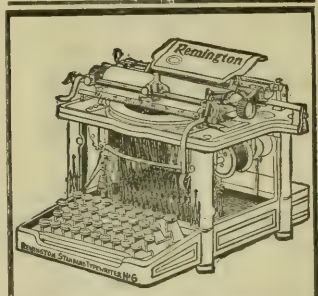
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"NORFOLK, VA."—Near the Sea.
There are cheap and beautiful homes in the "Sunny South," near the sea, and near that thriving seaport city, Norfolk, Va., for thousands of people who want happy homes in a mild, healthful, and delightful climate, a kind and productive soil, the very best markets in the world, the very lowest freight rates, good social, educational, and religious privileges, and the greatest number of other both natural and acquired advantages, to be found in any other one section of the Union.
The "CORNUCOPIA" tells you all about the beautiful section of country around Norfolk, Va. Send for (free) sample copies.
Address "CORNUCOPIA," 212 Main St., Norfolk, Va

PAINT TALKS, XXXII.

When a man persistently insists on one kind of material and virulently denounces everything else, it is wise for interested people to look behind the language for the motive. Manufacturers of heavy pigments which require very little oil to make them into paint, violently denounce as adulteration the addition of any other pigment, and especially of pigments that weigh less, bulk for bulk, and require more oil. Such additions it is urged are fraudulent and are ruinous to morals and the pocket-book.

Zinc white is an ordinary white paint, for example, increases the bulk per pound anywhere from fifteen to fifty per cent. according to the proportion used, and increases the relative ratio of oil to pigment correspondingly. It is here not only the quantity of heavier pigment displaced by the zinc white, but also the increased proportion of oil that counts, and it counts entirely against the heavy pigment. Perhaps that fact may have something to do with the violence of the objection, which may not be entirely unnatural.

From the consumer's point of view, however, the question wears a different aspect. If of two paints equally good and costing the same price per pound, a pound of one measures a gill while a pound of the other gives him a full pint of paint, it is easy to see that the latter costs him really only half the price of the other.

Outside the fact that it adds to the beauty and durability of paints, this is the chief factor in the popularity of zinc white paints; they are usually somewhat cheaper per pound than other white or tinted paints; but on the basis of bulk, which is the only true measure of relative cost, they are at least fifty per cent. cheaper.

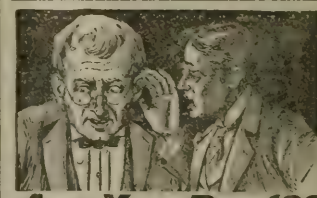
STANTON DUDLEY.

BOWMONT FARMS.

Bowmont Farms make another change in their advertisement in this issue. They offer several very fine Jersey bulls, bred from high testing ancestors of the noted St. Lambert strain. Also, some heifers of the same high character. Quite a number of very fine and high-priced animals have been purchased from Northern breeders by this establishment during the past four or five years, and the proprietor now claims that there is no better bred herd of Jerseys on the continent than the one maintained at Bowmont Farms. A feature of the herd is the great milk and butter records of the dams and other ancestors of the breeding bulls that are used in the herd. This, with the fact that no cow is permitted to remain in the herd that does not yield 40 pounds of milk per day when fresh, makes the standard of the herd very high, and stock bred from such ancestors should prove very valuable.

"Oh, we had the loveliest arrangement at our church society last week! Every woman contributed to the missionary cause $5, which she earned herself by hard work." "How did you get yours?" "From my husband." "I shouldn't call that earning it yourself by hard work." "You don't know my husband."

ORGANIZED 1832.
THE VIRGINIA FIRE & MARINE Virginia Insurance Company.
RICHMOND, VA.
ASSETS, - $800,000.
DIRECTORS:
Wm. H. Palmer, D. O. Davis,
E. B. Addison, Wm. Josiah Leake,
W. Otto Nolting.
WM. H. PALMER, - - President.
W. H. McCARTHY, - - Secretary.



Are You Deaf??
All cases of DEAFNESS or HARD-HEARING are now CURABLE by our new invention. Even those born deaf are incurable. HEAD NOISES CEASE IMMEDIATELY. Describe your case. Examination and advice free. You can cure yourself at home at a nominal cost.
International Aural Clinic, 596 La Salle Ave., Dept. 41 CHICAGO.

Virginia Polytechnic Institute
(State Agricultural and Mechanical College)
AT BLACKSBURG, VA.
A Southern Institute of Technology.
Thirty instructors. Thoroughly equipped shops, laboratories, and infirmary. Farm of four hundred acres. Steam heating and electric lights in dormitories. Degree courses in Agriculture, Horticulture, Civil, Mechanical and Electrical Engineering, Applied Chemistry and General Science. Shorter courses in practical Agriculture and practical Mechanics. Total cost of session of nine months, including tuition and other fees, board, washing, text-books, medical attendance, etc., about $195.00. Cost to State students, about $165.00. Next session begins September 21, 1900. For catalogue and other information, apply to J. M. McBRYDE, Ph. D., LL. D., Pres.

We Bind...
Your Magazines, Southern.. Planters, or any other books
PRICES LOW.
Satisfactory work guaranteed.
Job Printing Neatly Executed.
S. B. ADKINS & CO.,
RICHMOND, VA.

BIRDVILLE POULTRY YARDS,
PETERSBURG, VA.

We desire to sell our whole stock in order to make a change in our business.

Buff Leghorns..

Pullets, hens, cockerels and cocks one to three dollars.

Mammoth White Pekin Ducks..

(Rankin strain) two to three dollars. White Holland Turkeys, two to three dollars.

White Guineas..

One dollar each.

100-egg Buckeye Incubator, 200-egg Prairie State Incubator, 288 Duck egg Prairie State Incubator, Brooders, Cutting Machines, Bone Mill, etc. **For sale very low, at once. Correspondence solicited.**

OLD DOMINION PROLIFIC LAYING STRAIN of

B. P. ROCKS and WHITE WYANDOTTES

Young stock ready for shipment September 1st. **All stock gauranteed pure and bred for utility.** Correspondence cheerfully answered.

Old Dominion Poultry Yards. J. H. SLEDD, Negro Arm, Va.



SILVER LACED WYANDOTTES

Breeding Cockerels, 75c. ea. Trio (1 male, 2 females), $2.00

Reduction made for larger orders. High scoring healthy birds

Dr. H. H. LEE, Marmion, Va.
Rockbridge Co.

Cottage Poultry Yards.

Black Langshans

..EXCLUSIVELY..

Young stock now ready. Cockerels from $1.00. Trios not akin Price according to points. Eggs $1.00 per setting.
M. A. OLNEY, Coleman's Falls, Va.

MINORCAS and HOUDONS. To save feed and room, I will sell during the early fall months pure cockerels and pullets at 75c. each, when shipped, and 50c. when called for. May have also a few Barred Rock cockerels. These prices for Sept. and Oct. only.
A. G. HILL, Huon P. O., Louisa Co., Va.

Barred Plymouth Rocks

All ages and sizes cheap.

D. R. LOVE, Reedy P. O., Virginia.

WANTED A FIRST-CLASS MAN

To work on stock farm and board several hands. None but a good man need apply. JNO. F. LEWIS,
Lynnwood, Rockingham Co, Va.

THE SCIENCE OF FEEDING.

Feeding cattle is as truly a science as astronomy, but more practical. No longer guess work. Know how much cattle weigh when you buy them, how much you feed them, how fast or slow they gain in weight, and how much they weigh when you sell them—all accomplished by the Stock Scale.

M. W. Geaky, Shasta, O., says: "Your scale is one of the finest on the market to day, in regard to simplicity of construction, cheapness of erection, and for convenience and accuracy in weighing. I wish to say to any one in need of a farm scale that the Osgood is the one to purchase."



You want a cheap, accurate and durable scale. This is found in an Osgood, made by the *Osgood Scale Co., Binghamton, N. Y.* So simple that you can erect them. Tested to double capacity. Every part interchangeable. Only scale which will weigh accurately out of level. Forged iron, steel-lined hoops, double or compound beams. Many points which we cannot mention. Send for our catalogue and special price. *No advance in price on account of trusts.* If you know any neighbors who need scales, it will pay you to help us sell them.

FOR HOMESEEKERS.

The Chicago, Milwaukee and St. Paul Railway will sell regular Homeseekers' Excursion tickets to all points in South Dakota, at one fare plus $2 for the round trip, on September 18th and October 2d, 1900 This will enable parties to visit the Corn Belt Exposition to be held in Mitchell, S. D., September 26th to October 4th, 1900, inclusive. This exposition is held to demonstrate the great agricultural resources, wealth and possibilities of this thriving State. The exposition is held in a gorgeously decorated corn palace, which for beauty can hardly be excelled anywhere by a building of a temporary nature. There are thousands of acres of cheap lands left in South Dakota that will, under the present conditions in that State, rapidly increase in price, and the holding of this corn palace with its many attractions, that both amuse and instruct, should be an opportunity that all land and investment seekers should embrace.

For further information, apply to any ticket agent of the Chicago, Milwaukee and St. Paul Railway, or address George H. Heafford, General Passenger Agent, Chicago.

Dogs, unless led by their owners, are not allowed in the cemetery at Rio Janeiro, and a notice to that effect in Spanish, French, and English is posted up on the gate. The English notice is as follows: "Noble mesdames and gentleman who may desire a dog to follow in this tomb-yard will not be permission unless him drawn by a cable round him throttle."

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va.
WALTER WATSON.

ANGORA GOATS.



The great brush exterminator. They clear your land, make it rich, and set it in Blue grass, they are great manure makers, and the meat is the most delicate of all four-footed animals Choice specimens at reasonable prices for next sixty days.

RURAL VALLEY STOCK FARMS,
Geo. McD. Blake, Manager. GREEN SPRING DEPOT, VA.

ROCK HILL FARM.

....Shorthorns, Poland-Chinas,

Also Rose Comb

Brown Leghorns.

B. B. BUCHANAN, Brownsburg, Va.

WANTED.

A Bunch of GOOD SHEEP For Cash.

Also a team of good, heavy, well-bred MARES. Must be good workers.

... R. S. CAMERON, Gloucester, Va.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

ASA B. GARDINER, Jr., Manager,
GLENCOE, MD

The bulls from this farm have been sold to the very best herds in the South.

Also some very fine Berkshires now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.

We mail a little "Book of the Herd" on request.

SWIFT CREEK STOCK AND DAIRY FARM.



150 YOUNG THOROUGHBRED JERSEY HEIFERS and BULLS.

FOR SALE AT HARD PAN PRICES.

Blood of the famous **Stoke Pogis, St. Lambert and Coomassie** blended. Paying special attention to breeding my cattle, I have reached a degree of excellence not surpassed by any herd in the State. POLAND-CHINA Pigs always on hand. Write for what you want.

T. P. BRASWELL, Prop., Battleboro, N. C.

..We Offer a Fine Lot of..

JERSEY, GUERNSEY and DEVON CATTLE

FOR SALE.

BERKSHIRE pigs from registered sows, by boars direct from imported stock.

Barred Plymouth Rock, Brown Leghorn and Indian Game chickens now ready Also Bronze Turkeys.

M. B. ROWE & CO., Fredericksburg, Va.

THOMPSON & TRIMBLE,

SWOOPE, AUGUSTA CO., VA.

Breeders ..of.. Shorthorn Cattle and Shropshire Sheep.

...CORRESPONDENCE SOLICITED.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

GEORGIA STATE FAIR.

Mr. Editor,—I will appreciate it as a special favor if you will grant me space enough in your journal to say that the Georgia State Fair for the current year will be held at Valdosta October 29–November 4. It will be an old-time Agricultural Fair, conducted under the auspices of the Georgia State Agricultural Society, on up-to-date plans. The management have provided liberally for exhibits in farm products, live stock, poultry, etc.

Valdosta, a city of 7,000 inhabitants, is in the midst of the prosperous wire-grass section of Georgia, quite near the Florida line. Magnificent country, new field for exhibitors, and inviting to visitors.

Yours truly, MARTIN V. CALVIN,
Sec'y Georgia State Agricultural Society.

"HUNGER IS THE BEST SAUCE,"

Yet some people are never hungry. Whatever they eat has to be "forced down." There is, of course, something wrong with these people. By taking Hood's Sarsaparilla a short time they are given an appetite and then they enjoy eating and food nourishes them. If you find your appetite failing, just try a bottle of Hood's. It is a true stomach tonic and every dose does good.

The best family cathartic is Hood's Pills.

ANOTHER AMERICAN TRIUMPH.

The following letter has been received at West Chester, Pa., by Mr. P. M. Sharples, manufacturer of the Sharples Cream Separators, and will give great pleasure to thousands of Mr. Sharples' friends and users of his machines:

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,
DAIRY DIVISION,
WASHINGTON, D. C., August 27, 1900.

Mr. P. M. Sharples, West Chester, Penn.:

Dear Sir,—It gives me pleasure to inform you that we have just received from Major Henry E. Alvord, Chief of this Division, and now in charge of the U. S. animal industry exhibit at the Paris Exposition, a partial report of awards on dairy machinery and products in the U. S. Collective exhibit, which states that the Cream Separators sent by *you have been awarded the gold medal.*

Very respectfully,
R. A. PEARSON,
Acting Chief of this Division.

Take for your motto, "Put your trust in Providence, but hustle." It is probably as true now as it was in biblical times, that "the cattle upon a thousand hills are the Lord's," but if yon havn't money to pay the butcher, you will have to go without meat, and when you have obtained the meat, don't forget that John D. Rockefeller owns all the salt, and if you want to save your bacon, you will have to step around lively to get tribute for Johnny.

[From The Saturday Evening Post.]

The man who faces the present need not fear the future.

Tamworth and Poland-China A few nice PIGS for sale of each kind, entitled to registration.
J. C. GRAVES, Barboursville, Va.

BELGIAN HARES

All ages and sizes cheap.
JOHNSON & GOODE, Boydton, Virginia.

..ESTABLISHED 1856..

The HAYFIELDS HERD of HEREFORDS

FOR SALE—Four Bulls from Six to Ten Months Old.

WM. D. MERRYMAN, - - Cockeysville, Md.

WANTED

To buy two or three pure Holstein or Shorthorn

HEIFERS at reasonable figure.
Address W. F. JACKSON,
"Olga" P. O., Amelia Co., Va.

ELLERSLIE FARM

Thoroughbred Horses
AND SHORTHORN CATTLE,
Pure Southdown Sheep and Berkshire Pigs.

FOR SALE. R. J. HANCOCK & SON,
CHARLOTTESVILLE, VA.

Berkshire Pigs

FOR SALE.

Entitled to registry. Both sexes. Farmers' prices.

W. ELLIOT HAMMOND, Mansfield Farm, Goochland C. H., Va.

BERKSHIRES

All ages—most of them young. From registered stock and are choice animals.

D. O. NOURSE, Agriculturist,
... Blacksburg, Va.

FOR SALE—One Aberdeen Angus Bull Calf

21 mos. old. Price, $30.00. Two fine 6 year old MILCH COWS, fresh to the pail. Price, $30.00 each. Bargains in this stock.

W. M. WATKINS, Randolph, Va.

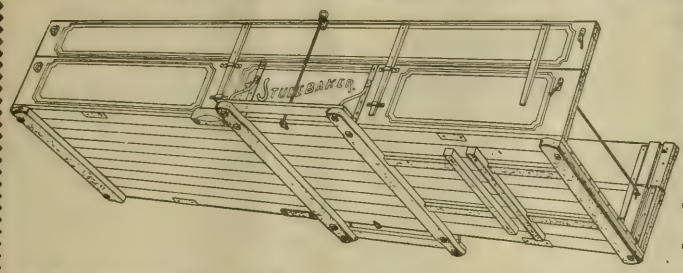


JACKS and JENNETS FOR SALE.

FINE JACKS a specialty. Write for what you want. Address

W. E. KNIGHT & CO.
NASHVILLE, TENN.

THE STUDEBAKER "20TH CENTURY" WAGON BOX.



NOTE THE MANY NEW FEATURES and IMPROVEMENTS TO BE FOUND ONLY ON THE STUDEBAKER "TWENTIETH CENTURY" WAGON BOX.



Fig. 5



Fig. 6



Fig. 2



Fig. 3



Fig. 4





Fig. 7

Description of Studebaker "20th Century" Wagon Box.

The above cuts of the Studebaker "Twentieth Century" wagon box show at a glance a number of new features and ingenious devices which are not to be found on boxes of other makes. To summarize, the most important of these are:

Bottoms built up of narrow boards of **long leaf yellow pine** grooved and matched. **Extra heavy bottom cleats,** with rounded ends. **Rivets** and **Bolts** where others commonly use nails. These features are very important, insuring durability and strength.

Bolster cleats braced both sides by two cleats extending from the bolster to the bottom cleats, taking the lurch of the box either way.

Iron strips on bottom over front and rear bolster are of sufficient length for the rivets to clear the bolster, obviating wear on the rivets.

Our new style **short-turning rub iron,** bolted on and without cutting the sides of the box, a distinct advantage over short-turning rub irons.

Reinforced Sides.—Ends of sides are finished square, the top strap iron on both upper and lower sides is bent over the corner at rear end about three inches and securely fastened. Cleats holding end-boards in place are riveted, where others use nails only. The inside top-box cleats fit against the bottom box cleats at both front and rear ends of box, and are re-inforced by an extra top-box cleat on the outside near the rear end of box, which extend about eight inches over the lower box. This admits use of a shoveling board, if desired, also greatly strengthening the box. All cleats are securely fastened with rivets.

Prevents Box from Warping or Splitting.—The two centre box straps are placed on the outside and hooked on top of the sides (as shown at "a" Fig. 3), and plates of iron (b) long enough to form a truss, but not long enough to interfere with shoveling, are placed opposite on the inside of the box, the brace bolts and rivets passing through the extra heavy side brace, strap and plate—the only box on the market with this important feature.

Locks and Strengthens the Sides.—The top box fastener or yoke rod is made of ⅝ inch round iron. The top forging (Figs. 1 and 5) hooks over and is bolted to the top of the top box. The rod extends the full depth of both boxes, and is fastened to the under side of the bed with a foot iron. The advantage in strength to the sides over the short fastener is apparent. It is a positive lock, simplicity itself, and always at hand when wanted.

The front box rods are 7-16-inch round iron in place of ⅝-in., as commonly used. They have a heavy shoulder washer, and are used in connection with the new style box washer and self-centreing nut (Fig. 4), and are fastened in place by large screws. The thread of nut is 9-16-inch long for a 7-16-inch rod. This length of thread insures against stripping.

The Unwieldy Box Rod Superseded.—The rear end of lower box is fitted with a 7-16-inch hook rod, fitting into eye-bolts with tail nuts as shown in Fig. 6. This is a simple, yet very ingenious device, having marked advantages, one of which is the facility with which the rod may be uncoupled and removed, with wagon in any position, as there is no rod to draw from the side of the wagon. It will be noted that the eye bolts have a pin on the side which prevents turning while tail-nut is being loosened. The eye-bolts are threaded for a 7-16-inch nut.

The rear end of top box is fitted with hooks riveted to the cleats. The hooks fitting into eye-bolts with tail nuts, the same as used on the lower box end. See Fig. 2.

Grain Strips are provided when desired. Canvas strips without additional cost; but for wood or iron strips an extra charge will be made.

Our "Twentieth Century" Box, as built with the above special features, has a light appearance, yet is very strong and substantial, and lends additional weight to our claim for "The Studebaker" as THE GREATEST WAGON OF THE AGE.

STUDEBAKER BROS. MFG. CO.,
SOUTH BEND, IND.

..STUDEBAKER WAGONS, CARRIAGES AND HARNESS..

CHAS. E. HUNTER, Agt., Richmond, Va. **Also agencies in all the principal towns and cities.**

MR. BOOTH'S ILLNESS.

EXPLAINED BY A PIPE AND A BOTTLE OF WHISKEY.

Stories of the intemperate habits of the elder Junius Brutus Booth are not uncommon, and here is a characteristic one:

During an engagement the business and stage managers had to keep an eye on him night and day, and yet he very often succeeded in outwitting them. On one occasion, after an unusually serious and prolonged outbreak, the manager locked Booth up in his dressing-room and put the key of the door in his own pocket. The rear of the theatre, like that of almost all theatres, opened on an unfrequented alley, and the great actor's dressing-room was on the ground floor Now, opening directly into this alley was a door, but this door was also locked and the key reposing in the manager's pocket. Booth added to his diseased thirst, however, an almost devilish cunning, and he soon devised a plan by which he could obtain the liquor for which he craved. Listening at the door which opened into the alley way, he soon heard a passing footstep, and softly rapped on the panel. The footsteps lagged and then stopped. "What is it?" said a voice.

Booth knew the voice: it was, as he had hoped, a hanger-on about the theatre, the sort of young man we would now call a tough.

"Listen," said the actor. "I will thrust a bank-note under the door, and I want you to go to the tavern at the corner and buy a bottle of whiskey and a long-stemmed clay-pipe. When you return I will tell you what I want done."

The young tough departed on his errand and quickly returned. Then he was instructed to thrust the long stem of the pipe through the key-hole of the door, and slowly to pour the whiskey into the bowl.

As a result of this easy stratagem, the bewildered stage manager found the famous actor in a drunken stupor when he came to release him in the evening, and was forced once more to appear before the curtain and to say:

"Ladies and gentlemen, I regret to announce that a sudden and serious indisposition will prevent Mr Booth from appearing on the stage to-night."—*Frederick Rosslyn, in the October New Lippincott.*

Mr. B. L. C. Griffith, of Philadelphia, who with Mr. Geo. McD. Blake, of Green Springs, Va., established the Rural Valley Stock Farms at Green Springs, Va., for the purpose of breeding Angora goats, died of typhoid fever last month at his home, in Philadelphia. Mr. Blake has purchased the entire plant, and will continue the business as before. In order to reduce the flock and to get a lift towards paying out, he offers some special inducement in lots of 10 to 50. Write him for prices.

DEVON CATTLE.

Our well known advertisers, M. B. Rowe & Co., Fredericksburg, Va., offer in another column a small herd of choice Devon cattle. A bargain for quick buyers.



URY STOCK FARM

HOLSTEIN-FRIESIAN CATTLE, rich in the blood of the greatest cows of the breed A choice lot of **Young Bulls and Heifers**, sired by Ury Alwina Count Paul De Kol and Count De Kol Metchilde, from dams that are large producers. Our herd is larger than ever before, and we will name attractive prices to breeders desiring the richest breeding. The best is always cheapest. Write stating just what you want. Also PLYMOUTH ROCK CHICKENS.

THOS. FASSITT & SONS, Sylmar, Cecil County, Md.

Registered Berkshires

"MAYOR OF BILTMORE" and "COUNTRY GENTLEMAN" at Head of My Herd.



I can furnish pigs from noted sows, "Eloise" "Bertha," "Miss Linwood," "Queen Quality" and "Queen Narka."

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.

Correspondence solicited,

Southern and N. & W. Rys. **T. O. SANDY, Burkeville, Va.**

Hill Top Stock Farm OFFERS FOR SALE

..... A LIMITED NUMBER OF

SOUTHDOWN and SHROPSHIRE SHEEP.

Some grand SHROPSHIRE lambs of either sex.

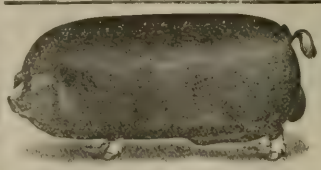
A GRAND LOT OF BERKSHIRE HOGS.

Young sows bred to elegant boars, and young boars ready for service.

Come and see our stock, or write for description and prices to

H. A. S. HAMILTON & CO., Staunton, Va.

Parties will be met at train with conveyance, if we are notified in time. We are always glad to show our stock.



TECUMSEH G. VOL. XXII (22).

POLAND-CHINAS.

I have a large number of pigs by my fine young boars, "TECUMSEH G." and "MONARCH," and can furnish pairs not akin or related to them previously purchased. Sows in pig and young boars and sows of all ages. Send to headquarters and get the best from the oldest and largest herd of Poland-Chinas in this State at one-half Western prices. Address

J. B. GRAY, Fredericksburg, Va.

A RECORD OF SUCCESS.

Without going extensively into statistics it may be stated that the McCormick Company's output for 1900 aggregated 147,000 mowers—one-third of the entire world's output. This branch of their business has had an enormous development, the number of mowers made as late as 1884 being but 15,000. The 1900 output of harvesters was 77,000, of reapers 20,000, of rakes 65,000 and of corn harvesters 20 000. From small beginnings of 8 or 10 machines per year, the McCormick interests have grown to their present magnitude, and they are noteworthy as being pioneers in the field of harvesting machines, and at the same time maintaining their pre-eminence through all the subsequent years. Their works cover an area of 86 acres and they now turn out 300,000 machines per year, and 15,000 tons of twine, employing 7,000 workmen. A branch of the Chicago river runs through them, by which steamers may unload on the wharfs of the company the vast amount of material required to produce more than a quarter of a million of machines annually. To the large group of buildings used for the manufacture of machines has recently been added an immense twine plant, whereby the company will manufacture its own twine instead of purchasing it as heretofore. Among the materials used in a year's output are the following: 65,000 tons of castings, 55,000 tons of steel of various kinds, 800,000 yards of cotton duck, 40,000,000 feet of lumber, 60,000,000 bolts and nuts, 90,000 tons of fibre.

The company has exhibited at all of the great French Expositions, receiving the following awards: Universal Exposition, Paris, 1855, Grand Gold Medal: Universal Exposition, Paris, 1867, Grand Gold Medal; Universal Exposition, Paris, 1878, Grand Gold Medal; International Exposition, Paris, 1889, Grand Prize; Universal Exposition Paris, 1900, Grand Prize of Honor; and also won the gold medal and first prize of 250 francs in the field trial at Coulommiers in July.

Surely this is a record of success of which every American may be truly proud.—Paris Letter from Alvin H Sanders. United States Commissioner at the Paris Exposition.

WOOD'S SEEDS AT THE PARIS EXPOSITION.

We are pleased to learn that our advertisers, Messrs. T. W. Wood & Sons, the well-known seedsmen of this city, have been awarded a gold medal at the Paris Exposition on their exhibits of seeds. We congratulate the above firm on their success.

A DEVON HERD..

Thoroughbreds and a few grades, in good condition, about 10 head.

Cheap, if sold this month.

Come and see them

M. B. ROWE & CO., Fredericksburg, Va

PIGS Some of the best bred in the United States at farmers' prices.

ARROWHEAD STOCK FARM, Charlottesville, Va.

S. B. WOODS, PROPRIETOR.

GASTON STOCK FARM.

Holstein-Friesian & Jersey Cattle.

Having selected my foundation stock from the best I can offer animals of each breed of highest breeding and individual merit, at moderate prices, coniaining the blood of the best families, and bred with great care.

I am prepared to sell HOLSTEIN BULLS, and BULL CALVES and JERSEYS of either sex.

JNO. U. DETRICK, Somerset, Va.

JERSEYS For Sale

2 BULLS fit for light service. Sired by Admiral St. Lambert, whose dam, Flower of Meridale, has a record of 53 lbs of milk per day, and 26 lbs. 11½ oz. of butter in 7 dams. The dams of the young bulls have butter records of 18 lbs. 8 oz., and 17 lbs. 4 oz. in 7 days.

Also some **FINE HEIFERS,** sired by Ethels John Bull, and in calf to Admiral St. Lambert, and bred from cows that milk 5 gallons per day. Prices reasonable.

BOWMONT FARMS, SALEM, VA.

BILTMORE FARMS,

BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO **GEO. F. WESTON, SUPT.**

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

A TRAGEDY OF THE CIVIL WAR.

A Southern Bride Killed by a Cannon Ball While the Marriage Ceremony was Going On.

Recalling the historic incident clustering about South Carolina's Executive Mansion, Mrs. Thaddeus Horton writes in the October *Ladies' Home Journal*, of the shocking tragedy that occurred there toward the close of the war. This was the death of the daughter of Governor Pickens immediately after her marriage to Lieutenant Le Rochelle. "On the afternoon preceding the evening of the marriage, the Northern army began shelling Columbia, but preparations for the wedding continued. Finally, the guests were all assembled and the clergyman was proceeding with the solemn ceremony, and had just joined the right hands of the happy pair, when, suddenly, there was an awful crash, and a ball from the enemy's cannon penetrated the mansion and burst in the middle of the marriage chamber, scattering its death-dealing missiles in every direction. There were screams and heartrending groans; mirrors crashed; the house shook; women fainted; and walls rocked to and fro.

"When the first confusion was over it was discovered that in all the crowd only one person was injured, and that was the bride herself. She lay partly on the floor and partly in her lover's arms, crushed and bleeding, pale but very beautiful, her bridal gown drenched with warm blood, and a great cut in her breast. Laying her on a lounge, the frantic bridegroom besought her by every term of tenderness and endearment to allow the ceremony to proceed, to which she weakly gave consent, and lying like a crushed flower, no less white than the camelias of her bridal bouquet, her breath coming in short gasps, and the blood flowing from this great, angry wound, she murmured 'yes' to the clergyman, and received her husband's first kiss. A moment more and all was over.

"She was laid to rest under the magnolias, and the heartbroken bridegroom, reckless with despair, returned to his regiment."



HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

POLAND-CHINA HOGS.—Pigs, six weeks old, $4 50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.

My Corn Crop is Ruined

By drouth, I must sell BERKSHIRES at a sacrifice; so here goes:

52 PIGS, 10 to 12 weeks old, $4,00 to $5.00. **4 READY-FOR-SERVICE BOARS,** perfect pictures, at $10.00 each. **10 YOUNG SOWS,** served by my imported boar, at $10 00 each. **3 SECOND-LITTER SOWS,** at $15.00 to $20.00. Older and thoroughly tested sows at half value

Fassafern Stock Farm. **THOS. S. WHITE, Lexington, Va.**

THE YOUNG MAN'S MANNERS.

SOCIETY ASKS THAT HE BEHAVE WELL, AND THEN HIS PATH WILL BE SMOOTH.

Society asks little of a young man except to behave well. If he be manly in looks, if he has a good manner, is civil to his elders, if he has any little gift of entertaining—any "parlor tricks"—if he sends a few flowers occasionally, looks pleasant and is polite, his way will be smooth to success—always providing that he is really a gentleman.

He never joins her on a thoroughfare unless the friendship be an established one and only with her permission—nor will he stand and converse with her.

It is provincial to walk "sandwiched" between two women, to stare, or look after any one who has passed.

In public conveyances a man does not pay a woman's fare unless he is her escort, except in an emergency, when he must ask if he may.

Introductions are rarely made in public places or conveyances.

A man precedes a woman when entering a theatre or public place. In a church the lady goes first. He may precede her up a public staircase, but in a private house in ascending and descending, he follows.

In picture galleries, elevators in public buildings, hotel and theatre corridors, they being thoroughfares, a man retains his hat. In a hotel he removes it if women are present.

If a lady bows to a man in a restaurant he rises slightly from his seat in acknowledgement. When he is with a party, if a lady with her escort stops to speak to his friends he rises and remains standing until she passes on. He also rises if a man is introduced to him when with a stag party.

If a bachelor show some little hospitality it advances him much in favor. If he has attractive rooms, or has anything to show, he may give an afternoon tea or a chafing-dish supper. Simplicity is in order. A bachelor's entertainment is usually regarded in the light of a frolic and his efforts indulgently considered.

A bachelor may live where he likes without loss of social position, if he belong to one good club, which he may only use for the address on his cards and note-paper.—*October Ladies' Home Journal.*

TEMPLE PUMP CO., CHICAGO.

Among the new advertisers to be found in this issue is the Temple Pump Co. of Chicago. This well-known company is now in its forty-seventh year of successful existence. The Diamond Windmill made by this firm is noted for many things, among which is, that it is the only mill on the market that is rust, dust, sand, sleet and rain protected. Our readers are requested to send for descriptive catalogue, which, in addition to giving all necessary information, will be found a rare specimen of printers' art.

"Ma," said a newspaper man's son, "I know why editors call themselves 'we.'" "Why?" "So's the man that doesn't like the article will think there are too many people for him to tackle."—*Tit-Bits.*

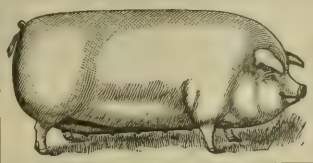
BACON HALL FARM.

"GOLD STANDARD,"
Related to Champion "Dale," heads Hereford herd.

DORSET SHEEP.
Ewe Lambs. Ewes bred for September.

BERKSHIRES—All registered stock.

Satisfaction, my motto. E. M. GILLET, Verona, Baltimore Co., Md.



I AM OFFERING 100 CHOICE
Improved Chester White Pigs
(All eligible to registry in N. C. W. R.)
Sired by 5 prize winning boars. Also beautiful SCOTCH COLLIE pups.
ARCHIE C. ROPER,
Lock Box 122. Charlestown, Jeff. Co., W. Va.

FOR SALE
Highlands Stock and Poultry Farm ....
at a very low price and on good terms.
Choice SHROPSHIRE SHEEP and Lambs.
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Can furnish extra fine DURHAM and JERSEY CATTLE at farmer's prices.
EGGS, B. P. Rock and Silver Wyandotte.



If you want a good home in Virginia, or good stock and poultry, apply to the owner, E. B. WILSON, Fancy Hill, Rockbridge Co., Va.

Trade-Marks



"BLACKLEGINE."

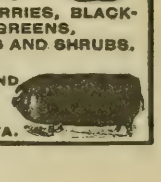
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SAVES CATTLE FROM
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Nearly 2,000,000 successfully treated in U. S. and Canada during the last 5 years. Cheap, safe and easy to use. Pamphlet with full particulars, official endorsements and testimonials sent FREE on application.
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We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.,
APPLES, PEACHES, PEARS, CHERRIES, PLUMS, APRICOTS, GRAPES,
QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.
POLAND CHINA PIGS.
BRONZE TURKEYS, BROWN LEGHORN AND PLYMOUTH ROCK FOWLS.
WRITE FOR DESCRIPTIVE CATALOGUE.
J. B. WATKINS & BRO.,
HALLSBORO', CHESTERFIELD CO., VA.







THE FATE OF THE CONFEDERATE SEAL.

IT WAS FIRST DEFACED AND THEN SUNK IN THE SAVANNAH RIVER.

"The result of the last Confederate council of war held at Abbeville, South Carolina, in May, 1865, was soon known all over Abbeville, and the generals and the Secretary of War were kept busy for hours signing honorable discharges for the tired soldiers, who immediately applied for them," writes Mrs. Thaddeus Horton, in the October *Ladies' Home Journal*. "During the evening Mr. Benjamin asked for a hatchet, and with it he defaced the Confederate seal. About twelve o'clock the same night the Confederate party continued their retreat in the direction of Washington, Georgia, and while crossing the Savannah River in the darkness, some one suggested that the seal be thrown overboard. This idea was at once approved, and when the boat reached mid-stream it was dropped with a dull splash into the sandy river bed of that beautiful Southern watercourse, where to this day, its mission all fulfilled, it serenely rests."

ORIGIN OF "DIXIE'S LAND."

THIS STIRRING SONG OF THE SOUTH WAS COMPOSED BY DANIEL EMMETT, THE FAMOUS MINSTREL.

The original song, "Dixie's Land," was composed in 1859 by Daniel Emmett as a "walk-around" for Bryant's minstrels. Mr. Emmett frequently heard the performers in a circus make the remark, "I wish I was in Dixie," as soon as the Northern climate began to be too severe for the tent life which they followed. This expression suggested the song, "Dixie's Land." It made a hit at once in New York, and was speedily carried to all parts of the Union by numerous bands of wandering minstrels. In the fall of 1860 Mrs. John Wood sang it in New Orleans, in the burlesque of "Pocahontas," and before a week had passed the whole city had taken it up. A New Orleans publisher saw possibilities in the music, and without the authority of the composer had the air harmonized and rearranged, issuing it with words embodying the strong Southern feeling then existing in New Orleans.—*October Ladies' Home Journal.*

Do you read what people say about Hood's Sarsaparilla? It is curing all forms of disease caused or promoted by impure blood.

Divorce Lawyer: "You say you want to sue your husband for divorce on the ground of infidelity?" Woman: "Yais, sah. De misabel infidel say he doan believe de whale evah swallered Jonah, or de animals went into de ark, or nuffin."—*Judge.*

Visitor—"And how is the restoration fund going on, Mrs. Lychgate?"

The Rector's Wife—"I'm sorry to say it's going on most unsatisfactorily. We've tried every conceivable means of getting the money honestly, and failed, and now the rector says we must try what a basaar will do."—*Punch.*



DIAMOND GALVANIZED STEEL WINDMILLS AND TOWERS
THOROUGHLY TRIED AND NOT FOUND WANTING.
ONLY MILL-RUST, DUST, SAND, SLEET AND RAIN PROTECTED.
LESS TOWER CLIMBING REQUIRED. NOISELESS.
CANNOT BE RACED, RUNS WITHOUT OSCILLATING, DISCOURAGES TRAMPS.
"NOTHING IS CHEAP UNLESS WELL MADE"
IN 1899, THOUGH THOUSANDS IN OPERATION, WE SHIPPED LESS THAN $100 IN REPAIRS. THIS IS UNPRECEDENTED. NO MILL MADE WILL RUN IN AS LIGHT WINDS—THIS WITH DURABILITY DETERMINES EFFICIENCY. WE GUARANTEE OUR 6 AND 7 FOOT MILLS EQUAL IN PUMPING CAPACITY TO 8 FOOT MILLS OF OTHER MAKES; OUR 8 FOOT EQUAL TO 10 FOOT; OUR 10 FOOT EQUAL TO 12 OR 14 FOOT OF OTHER MAKES. NO CONTRACT OR PIECE LABOR EMPLOYED IN THEIR MANUFACTURE. ALL CASTINGS ARE "A NO. 1." SHAFTING MADE OF COLD-ROLLED STEEL. BEARINGS ARE SUPERIOR TO GRAPHITE. OUR STEEL TOWER STANDS SEVEREST STORMS. IS THE ONLY TOWER PROVIDED WITH DOOR-OPENINGS. EVEN AN INEXPERIENCED MAN CAN ERECT.
SEND FOR OUR ILLUSTRATED WINDMILL BOOK.
THIS IS OUR 47th YEAR. MENTION THIS PUBLICATION
THE TEMPLE PUMP CO., MANUFACTURERS, CHICAGO, ILL.

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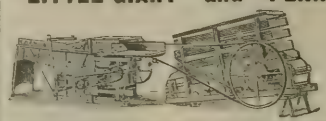
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It is one of the handiest tools on the farm. Can be operated by one or two men. Made of solid steel, and will last a lifetime. It takes up roots and branches thoroughly. Unequalled for grubbing out fence corners. **Agents wanted.** Circular free.

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Leon, Madison Co., Va.

"LITTLE GIANT" and "PENNSYLVANIA" PEANUT PICKERS.



The "Little Giant" and "Pennsylvania" were the first successful Peanut Pickers. They were leaders in 1889. Have added improvements for 1900. No other machines so strong and durable, do the work so well or so rapidly, require so little power to drive them, or are so easily and quickly adjusted to the various requirements in successful operation. Will thresh Wheat, Oats, Rice, etc.

Dr. H. V. Dunstan, Windsor, N. C., averages 300 bushels per day with smallest machine—the Pennsylvania. Some who do custom work have bought the second and third machine. Men who have the time and the means to equip themselves, make more money "pulling peanuts" than in any other work. We have small machines for individual work on plantation or large machines for those who wish to do custom work.

"The day is near when there will not be a hand-picked peanut in Virginia, save only for seed," writes a customer who is operating three of our outfits in Sussex county.

For free catalogue, prices, terms, etc., address

STRATTON & BRAGG,
Hardware, Machinery and Engines,
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The ELLIS CHAMPION
Grain and Peanut Threshers.



The **ELLIS CHAMPION** has built up its own enviable reputation by the quantity and quality of its work, and the durability and simplicity of its construction.

Mr. Otto Gericke and Mr. Limon Myers, of Dinwiddie, averaged 375 bushels per day for several days with the smallest machine. Mr. Luther Spiers, of Sussex, Va., who has bought three of the largest size to do custom work with, says he has used other makes of grain and peanut threshers, and finds that none can do as much and as good work as the ELLIS, and at such a small cost for repairs. For catalogues, prices, terms, etc, address

GEO. W. BURGESS, General Agent, Burgess, Va.

Clubbing List for 1900.

The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever journal you wish.

	PRICE ALONE.	WITH PLANTER.
DAILIES.		
The Dispatch, Richmond, Va.	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harper's Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeder's Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harper's "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 35
Cosmopolitan "	1 00	1 25
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish *no sample copies* of other periodicals.

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RED CLOVER.
MAMMOTH CLOVER.
CRIMSON CLOVER.
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ORCHARD GRASS.
RED TOP or HERDS GRASS.
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RANDALL GRASS.
TALL MEADOW OAT GRASS.
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BUCKWHEAT.
OATS and
CANE SEED.

"Whatsoever One Soweth, That Shall He Reap."

We sell strictly reliable FIELD AND GARDEN SEEDS of every variety at Lowest Market rates, included in which are RAGLAND'S PEDIGREE TOBACCO SEEDS.

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For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

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Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogues free.

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W. T. HOOD & CO.

OLD DOMINION NURSERY, RICHMOND, VA.

A REBUKE TO DANCERS.

Near by to Thrums an old minister denounced from the pulpit and threatened the terrors of the law on all who should appear at a ball to be given within the shadow of his kirk. One elder, primed by his young folks, expostulated, reminding the minister that David danced and that Miriam danced.

There was seemingly silent acquiescence. But the following Sunday the old man eloquent in his might, as he banged Bible and pulpit alternately, shouted in stentorian tones, "David did dance, and Miriam did dance, but the Bible nowhere says "Let there be *promiscuous* dancing!"—M. E. Leicester Addie, in the October "*New Lippincott.*"

THE WAY TO MAKE CHESTNUT SALAD.

To make chestnut salad shell a pint of large, solid chestnuts; throw them into boiling water for five minutes, and remove the brown skins; then boil or steam until tender. When they are boiling put into a bowl a saltspoonful of salt, a dash of black pepper, one onion sliced very thin; add four tablespoonfuls of olive oil, rubbing all the while, and then two tablespoonfuls of tarragon vinegar. Pour this over the chestnuts while they are hot; stand aside until very cold, and serve on lettuce leaves. Or the dish may be covered with finely chopped cress.—*October Ladies' Home Journal.*

SWEET POTATO CROQUETTES.

Bake the sweet potatoes until they are tender; then scoop out the centres and put them through a vegetable press. To each two cups of mashed potatoes allow a tablespoonful of butter, a level teaspoonful of salt, a tablespoonful of sugar and a half saltspoonful of white pepper; mix thoroughly. Form into cylinders, dip in egg, then in breadcrumbs and fry in smoking-hot fat.—*October Ladies' Home Journal.*

Do not fret over uncertainties and disappointments. They are inevitable.

The chickens fattened for the priest,
Are captured by the weasles.
The children booked for whooping-cough,
Are taken down with measles.
"When weariness with life your spirit fills,
When deep disgust consumes you with your lot,
Draw some store of comfort from the ills
You haven't got.

The common woes of life are bad enough;
Misfortunes fall as easy as the dew,
And still for every morning's steak that's tough
There might be two.

Oh trust me—better not make ado
At the few miseries of our common lot;
There's millions of 'em—if you only knew
You have'nt got.

[From The Saturday Evening Post.]

Waiting for the office to seek the man is all very well, but he who stays out of politics never becomes President.

Why Pay Enormous Prices



for your Cooking Stove or Range, when you can buy direct from the Factory and save one-third of the cost?

Write for Catalogue and full particulars.

Manufacturers of the celebrated **FITZ LEE COOKING STOVES.**

Address **SOUTHERN STOVE WORKS,**
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WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

Apples,	Nectarines,	Pecans,	Ornamental and
Pears,	Cherry,	Chestnuts,	Shade Trees,
Peach,	Quinces,	Walnuts,	Evergreens,
Plum,	Almonds,	Small Fruits.	Roses, Etc.
Apricots,			

CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

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Designated Depository of the United States, City of Richmond and Commonwealth of Virginia. Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

Capital Stock, $200,000
Surplus and Profits, $375,000

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DIRECTORS.—John P. Branch, B. B. Munford, Chas. S. Stringfellow, Thos. B. Scott, B. W Branch, Fred. W. Scott, Jas. H. Dooley, Jno. K. Branch, A. S. Buford, R. C. Morton. Andrew Pizzini, Jr., J. P. George.



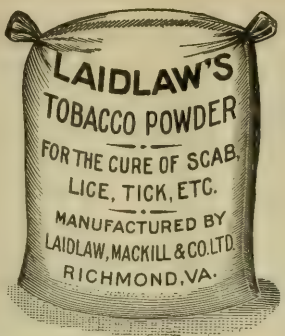
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LAIDLAW'S

Extract of Pure Tobacco.

..SHEEP DIP AND CATTLE WASH..

Put up in 1 lb., 7lb. and 14 lb. tins. **Price, 30 cents per pound, free on cars Richmond.**



LAIDLAW'S

Tobacco Powder

SHEEP DIP AND CATTLE WASH.

Put up in 5, 10, 50 and 100 lb. bags.

Price, 10c. per lb.

Sure and speedy remedies for SCAB, TICK, LICE and all the various forms of Vermin that infest live stock.

Nicotine dips are fast gaining in favor with the farmer and are coming to be recognized as the only really effective eradicators of vermin on all stock.

READ WHAT THE FOLLOWING SAY ABOUT THEM.

Mr. A. C. BROWNE, of Centre Cross, Essex Co., Va., writes:

I have pleasure in testifying to the efficacy of your pure Tobacco Extract and Sheep Dip Powder for cleansing cattle of lice. I used both of them on a herd of young calves, and also on old stock that were very badly infected with lice, and after one aplication they were freed of all the vermin. I feel sure in saying that from the action of it on cattle, that it will destroy vermin on any kind of stock, and I can strongly recommend it to all farmers who have lice or other vermin on their stock, and wish to get them into a good healthy condition.

Mr. K. H. CORNWALL, Wilton, Va., writes:

After trying your Tobacco Extract on my flock of sheep and Angora goats, I have pleasure in stating that it eradicated all vermin, and I consider it a very sure cure for lice, and all vermin on sheep, goats and hogs. I can strongly recommend it to all farmers who have vermin on their stock.

Mr. FRANK H. HILL, of Victoria, North Carolina, writes

I find that for lice on cattle it is beyond doubt the best remedy I have ever tried, as also for sheep ticks. I have not yet had sufficient time to test its efficacy for scab on sheep, but am sure it is equally good for that also.

We ask you to give it a trial and feel sure you will not be disappointed. Manufactured by

LAIDLAW, MACKILL & CO., Ltd., 3400 to 3500 Williamsburg Ave., RICHMOND, VA.

Pedigrees traced and tabulated. Catalogues compiled and circulars prepared Special attention given registration matters pertaining to thoroughbred, trotting and other breeds of horses.

..FOR SALE..

Fast Trotters and Pacers Fine Road and Saddle Horses

..BY..

W. J. CARTER (Broad Rock,)

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RICHMOND TIMES, Richmond, Va.
SOUTHERN PLANTER, Richmond, Va.
SPIRIT OF THE TIMES, New York.

REFERENCES.—Mr. A. B. Gwathmey, Cotton Exchange, New York; Mr. W. N. Wilmer, of Wilmer & Canfield, lawyers, 48 Wall St., New York; Mr. H. A. Buck, Editor Spirit of the Times, New York; Col. K. M. Murchison, Banker, Wilmington, N. C.; Mr. L. Banks Holt, Proprietor Oneida Cotton Mills and Alamance Farm, Graham, N. C., Col. B. Cameron, Proprietor Fairntosh Stud Farm, Stagville, N. C.; Maj. P. P. Johnston, President National Trotting Association, Lexington, Ky.; Mr. Thomas N. Carter, President Metropolitan Bank, Richmond, Va.; Mr. Jas. Cox, Proprietor Belgravia Stock Farm, Mt. Jackson, Va.; Capt. John L. Roper, Norfolk, Va.

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Carriages and Harness of the finest makes can be had . . .

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Soiled photographs may be cleansed by sponging with clear cold water. The cardboard mounts should be cleansed by rubbing with dry bread.

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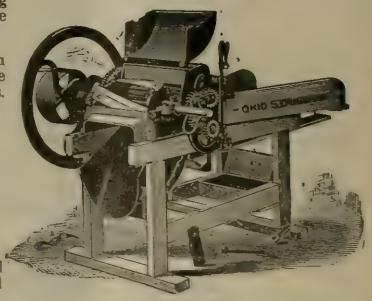
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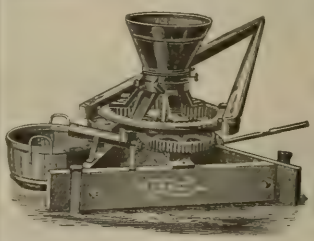


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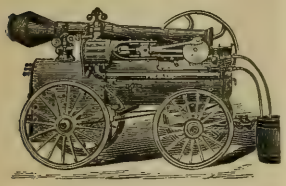
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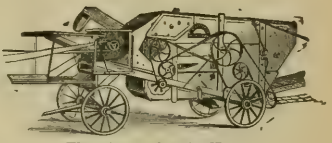
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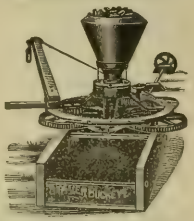
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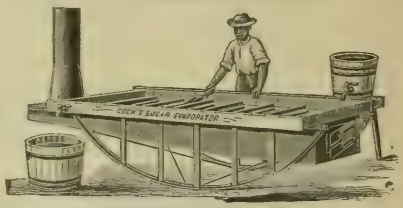
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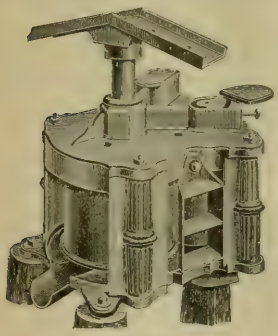
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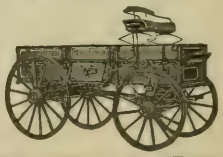


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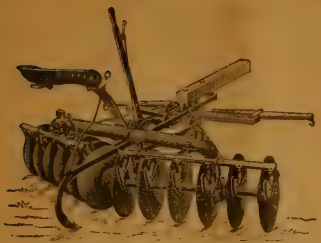
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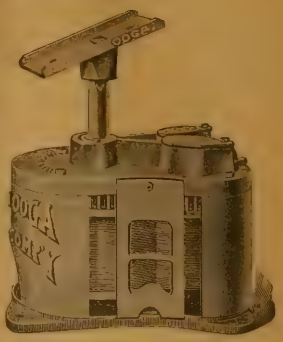
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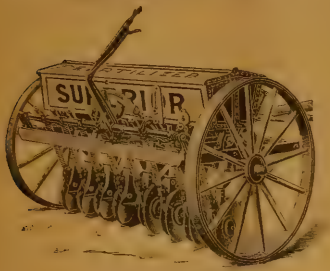


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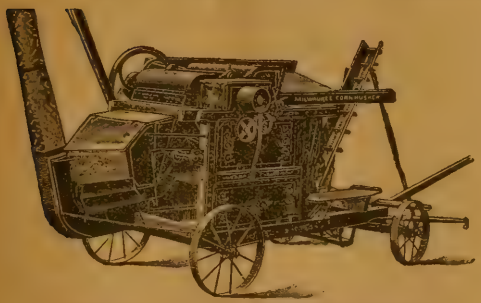
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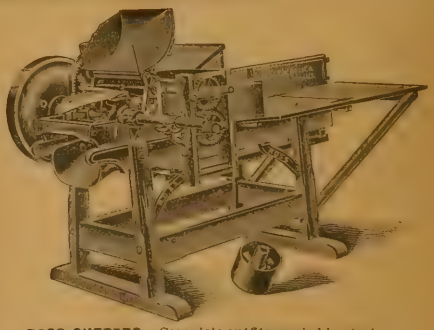
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Vol. 61. NOVEMBER, 1900. No. 11.

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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, November, 1900. No. 11.

Farm Management.

WORK FOR THE MONTH.

The long, dry, hot summer has been succeeded by a fine, mild, genial fall, and as the result of the general rains which we have had all nature is revived, and the appearance of the pastures and meadows is almost spring like, whilst the trees are still covered with foliage upon which the autumn has not even yet cast its golden hues, and this in the last week of October. This state of affairs is a most fortunate one for the farmers of the South, many of whom, if November keeps as mild and open as October has been, will be able to carry stock through the winter, which, under other conditions, would have had to be sacrificed for such prices as could have been obtained. The growth of grass and forage crops has been remarkable for the time of the year, and cattle and stock of all kinds are revelling in good grazing, and thus saving the short yields of forage for the later winter months. Farmers, at Thanksgiving Day, may well bear this in mind amongst other blessings for which to give thanks.

The rains having put the land into good condition for plowing, much progress has been made in the preparation for and seeding of the wheat crop, which is going into land in fine condition *where properly worked* for ensuring quick and even germination and good growth before the cold weather sets in. Whilst seeding is generally later than usual, yet with a continuance of fine open weather, we look to see the crop go into winter in good condition. The light frosts we have had make prompt seeding safe, so far as attacks from the "fly" are concerned. The important thing to observe now is the most perfect preparation of the land before seeding. Make the seed-bed fine and compact, and see that provision is made by water-furrows and good drains to keep the crop out of water. Wheat never succeeds with its feet in water during the winter. Whilst it is perhaps too much to hope that in the South we shall be able to much increase the wheat acreage, it is yet desirable that we should do so so far as compatible with a proper preparation of the land. The wheat crop of the world is a much less one, less by 200 million bushels, than that of last year, and by 400 million bushels than that of 1898, and the requirements of consumers are much greater than in either of those years, not merely because of the increase of population, but also by reason of the much greater consuming capacity of a busy population, such as we now have. The South should make its own bread grain at least, and, if possible, something for sale. It would do this if only the acreage production was brought up to what it ought to be, and do it with profit and saving to itself. We are glad to know that this year it has done better in this respect than in any year since the war, but there is still much room for improvement. When we hear of crops of thirty, forty, and even fifty bushels to the acre being grown in the South, and know of our own knowledge of many of twenty-five and thirty bushels being grown, we

fail to see why the Southern States should appear in the returns of the Department of Agriculture among those States only making an average of ten to twelve bushels to the acre. Let an effort be made this year to improve on this. The great need is *good preparation of the seed-bed.* This will do more to ensure success than more fertilizer. As the late Sir John B. Lawes pointed out a year or two ago, the result of his long series of experiments went strongly to shew the remarkable power of wheat to forage for food in *well-prepared land.*

The work of harvesting the corn and forage crops should be pushed to completion as fast as weather and conditions will admit. Far too many acres of corn are left out in the field, either in the shock or on the stalks still uncut, far into the winter for profit to the grower. Even in this year of short fodder crops we see many crops of corn from which only the corn is being gathered. The stalks and fodder are left to waste where they grew, or to be harvested by stock during the cold, raw, wintery weather. Such feed is of but little value to the stock eating it. It barely keeps body and spirit together, and certainly results in no increase in value of the stock. The nutritive portion of the plant is wasted by weathering instead of being carefully saved by the stalks being cut down at the roots, and, when cured, being shredded or cut and stored under cover. When treated in this way, the nutritive value of the feed thus secured is almost the equivalent of timothy hay and much greater than wheat chaff, which so many Southern farmers regard as a good feed and carefully save. The Director of the Iowa Experiment Station says that corn fodder grown in that State this year would be worth $40,000,000 as feed, if all carefully saved in this way. Most of this large sum will be lost. This, also, is true of the South. We "save at the spigot and waste at the bung." The extent to which Southern farmers waste the products of the crops which they have labored hard to produce, is a constant source of astonishment to an English, a French, or a German farmer. In those countries, when the harvest is completed, nothing will be seen in the fields; even the stubbles are raked with the horse rake to gather up the shattered straw and blades. All is carefully saved and either housed or stacked near the barn and stable to be converted either into feed or manure. Until such a system is adopted here no farmer has any right to grumble and complain as to the unprofitableness of his calling. Were Armour & Co., of Chicago, to waste the offal and refuse of the carcasses they slaughter, and sell only the actual meat of the animals, they would go into bankruptcy in a few month's time. The profit on their great business is almost entirely made out of the careful saving of the blood and offal of the animals slaughtered. So it is in almost all great commercial undertakings. The little items saved are those out of which the great profits are made. The farmer in these days of close and world-wide competition cannot expect to be exempt from the conditions affecting all business undertakings. He should save all he produces, and make it, either directly or indirectly, conducive to the profit of the farm. In no way is he a greater sinner against the inexorable rules of political economy than in the way in which he neglects to carefully harvest and save his corn crop. It is not yet too late to save fodder crops of various kinds. We have made excellent dry feed in November from late sown corn, sorghum and millet. It requires much more time and care to secure a well-cured article of feed at this season than earlier in the fall, but when feed is short this time ought not to be grudged. It will be found easier to give the time and labor than to find the money to buy the feed in winter.

Let all root crops be dug or pulled before severe weather sets in, and be stored either in cellars or in kilns or pies. They should be dry before being placed in bulk, or they will not keep well, and provision should be made for allowing the moisture arising from the sweating of the crop, which will take place during the first week or ten days after the bulking, to pass off. This may be done by only covering the kiln or pie with straw until after the sweat has taken place, and then covering the straw with earth to keep out the frost. Ruta baga turnips may be safely left growing until the end of the month. They are not injured by even several degrees of frost, and will make more weight in this cool moist month than during any other like period in their growth. If the Irish or sweet potato crops have been affected with blight, rot, or any other fungoid disease, the vines should dried and burnt, and not be plowed down. In this way the spores of the disease will be destroyed. If plowed down, they are very apt to infect the land and the disease prove troublesome in the next crop of the same botanical family.

When all crops have been saved, and wheat seeding has been completed, and at all intervals, when opportunity serves, let the teams be kept at work plowing and subsoiling the land intended to be cropped next year. The earlier this work is done the more likely is it to be beneficial to the crop. This comes about from several causes. In the first place, early breaking permits of the entrance into the soil and subsoil of air and water at a time when these are warmed by the atmosphere and when the soil itself is warm. This promotes and increases the nitrification of the soil and

continues the solvent action of the ferments, which should be always in action in a productive soil. In the next place, it permits of a larger storage of water in the subsoil, which when newly broken is more absorptive than after it has become compacted. Then again, the earlier it is broken the more time has the soil and subsoil to become compacted before the crop is planted, and all crops, although benefitted by a soil being sufficiently permeable for the roots to easily penetrate, yet equally require that the soil around those roots should be sufficiently compact to afford good root hold and a close adhesion of the soil to the rootlets. The truth of these conclusions has been abundantly demonstrated in numerous experiments. We are aware that in advising fall plowing we are running counter to the opinion of many, probably a majority of Southern farmers, but we are none the less satisfied that we are advising the course adapted to secure the best results. The contention of most of these farmers is that it is waste of time and labor to plow in the fall, as the winter rains beat and consolidate the land again so that spring plowing is still necessary. Even granting this to be so, we still believe that fall plowing is best. The great need of all Southern arable land is cultivation, the deepening of the soil and its æration, the admission of the winter and spring rains to the subsoil, and the making of that subsoil porous enough to hold this water supply for the summer crops. In no other way can these ends be secured except by fall plowing. There is not time in the spring to give that deep and perfect breaking and cultivation which the best interests of the crops demand, nor is there time then for the soil to be sufficiently ærated to make it a fit place in which crops can grow. On all, except heavy clay lands, this fall plowing ought to be supplemented by the seeding of some winter growing crop, such as vetches or vetches and rye or rye alone, if too late in the season for vetches, so that the avaliable plant food in the soil shall not be leached away but be utilized by a crop either to be used as green forage or to be turned under. A heavy clay soil may safely be left unseeded and rough, to receive the benefit which the winter's frosts will confer. These, though not so powerful in their effects in the South as in the North, will yet greatly ameliorate and improve the condition of the land.

Let the buildings in which live stock of any kind are to spend the winter have a careful overhauling. See that they are made wind, water and weather tight, and have a good coat of limewash. If this is not attended to, it will cost food to warm them so that the stock can be comfortable, and food costs money. Instead of warming the stables and buildings the food given should be making milk, butter, beef, meat and eggs. If the floors are not tight so as to hold and save the liquid manure, have them made so. More than one half of the manurial value of the excrement of stock is in the liquid. Concrete floors are best as they last forever, and are perfectly tight. Concrete is easily made at home from cement and clean sand mixed with fine broken stone. Use one part of cement to three parts of sand, and mix soft enough with water to spread easily. This must be laid down three or four inches thick, and spread level as mixed, as it soon sets hard. A smooth face of cement and sand alone should be spread over the rubble concrete. Lay the floor so as to drain to one point and carry the liquid from this point to the manure pit in a drain. Such a floor will pay for itself in a year or two's time.

Have a suitable place made ready to receive all manure from the different stables, sheds and pens. Do not let this be adjoining any building or where the water from the roofs will fall into it. The site should be lower in the centre than at the sides, so that all liquid will be saved, and should be either of clay or concrete. In this pit mix the manure from all the different kinds of stock as it is made, except at times when it can be at once hauled from the stables to the field where it is to be applied Mixed together in this way and kept moist with the liquid manure, it will not fire-fang and become worthless.

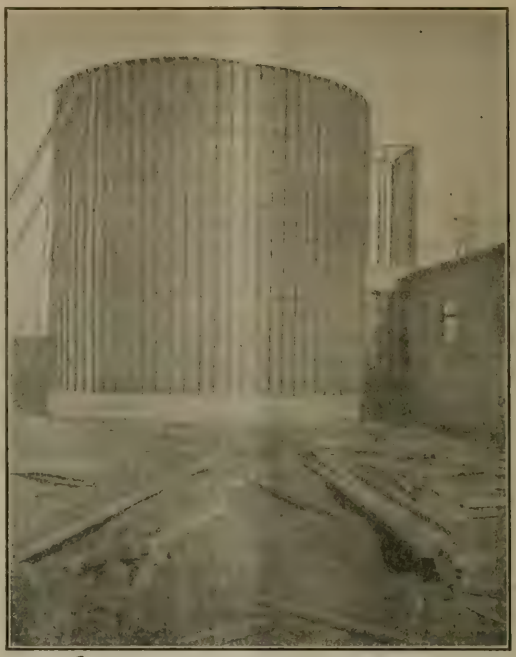
See that the fence and gates of the barnyard are made good, so that stock when turned out for an airing can be kept within the yard and not ramble all over the farm punching the land into holes and doing damage to the crops.

Let good, high dry paths be made from the house to the barn and stables, and from one building to another, so that in wet weather it will not be necessary to wade through mud and water to attend to the wants of the stock, nor will dirt and filth be carried from the yard into the house.

Make good slatted or stone paths from the house to the wood shed, smoke-house and other domestic buildings adjoining the house, so that the women folk can go from one place to another in wet weather without getting wet feet and carrying dirt into the house. Attention to these seemingly small things will make home much more pleasant for all.

See that all implements and tools not in use are brought into the barn or under cover. Clean the dirt from them, and give the shares and blades and other unpainted metal parts a coat of oil to prevent rusting. In the winter on wet days repairs can be made where needed and a coat of paint be given. Such attention will save many times the cost of the oil and paint. Neglect of implements and tools costs Southern farmers thousands of dollars every year.

SILO BUILDING.



Though late in the year to be of much service to our readers just now (we were unable to secure the illustration earlier), we publish the accompanying illustration shewing the mode of construction of the silos at the Virginia Experiment Station, at Blacksburg, with the following extract from the specification for the builder, in the hope that those of our readers who are keeping more than half a dozen cows, and have not a silo, will give the subject consideration during the winter, and decide to build a silo to hold the next year's fodder crops. A silo is the cheapest barn which a man can build, even though he should build in the comparatively costly manner in which the Experiment Station silos are built. A much less costly building will meet the needs of the case in this mild climate, but a well-built and well finished structure is always economical in the long run, and much more satisfactory in appearance and in use. The specifications provide as follows:

The silos are to be constructed with an especial view to making the sides air-tight. Foundation, stone; floors, earth. To be built circular in form, and be joined to stable by chutes, as shown on the drawings.

Sills.—Sills to be made of two thicknesses two-inch by six-inch stuff, cut to required circle in about three foot lengths. Lap and spike all joinings and bed in cement.

Plates.—Plates to be made of single two inch by six-inch stuff, cut to required circle, halved, lapped and joined only on top of a stud, and nailed down tight.

Studs.—Studs to be two inches by four inches, by 24 feet long, well toe nailed to plate, and spaced eleven and three-quarter inches on centers. Take care to have all studs true and straight. Rafters to be two inches by six inches, and arranged as shown on drawing. Notch down two inches on plate and spike well at all points.

Roof Sheathing.—Roof to be sheathed with one-inch by two inch boards, bent to circle, and the boards laid five inches from center to center.

Siding.—Outside walls to be covered with a course of five eighths by five and-a half inch ship lap siding, bent to circle and nailed with two ten-penny wire nails at each stud. Inside studs to be lined, first, with dry five-eighths by four-inch jointed boards of even thickness. Nail at each stud with two eight-penny nails. Over this, lay a course of one-ply tar paper. Then lay a course of dry T. and G. ceiling, five-eighths-inch thick and four-inch face; drawn down tight by blind nailing with eight-penny nails at each stud, and face nail with two penny nails at each stud.

Dormer.—Construct a dormer window in roof of each silo, as shown on drawing. Frame stoutly to rafters and provide a stout glazed sash and frame. Frame to be made of one-inch boards with half-inch stop, three-inch oak sill, one- by eight-inch outside casing, and one- by four-inch inside casing. Window to be three by four feet, glazed with twelve lights, single thick glass. Hang on four-inch butt hinges, and provide hasp, staple and padlock on outside.

Doors.—There shall be placed three two- by four-feet doors in each silo; each to be in same vertical line, and each opening into chute. These doors are to be made by cutting out the inside lining; before cutting out, put on two battens to each door, two six-inch strap hinges to each door. After this is done the door may be cut out and will fit snugly. Place a door-stop all round, thereby forming a rebate for the door to fit in. Open doors into silo or chute as directed by Superintendent and provide hasp and staple for each door.

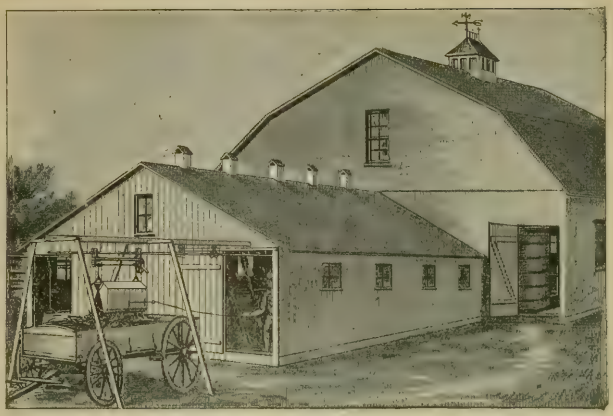
Ventilator.—Place a ventilator in roof, as shown on drawing. Lower slats to be half inch by six inches, turned on angle of forty-five degrees and spaced three-inch centers, and wire-gauzed on back to prevent the entrance of birds.

Ventilation.—Walls are to be ventilated as follows: Siding on outside is to run up and fit close to roof sheathing. Siding at top and bottom to be bored with one-inch holes in a double row, the holes being spaced about three inches apart horizontally. Cover with bands of wire gauze to keep out mice.

Gutter and Cornice.—Cornice will consist simply of rafter ends and sheathing.

Roofing.—Same general specifications as for stable and barn will apply for silo roofing

MANURE CARRIERS.



This illustration shews the manure carrier referred to in the description of the Virginia Experiment Station Barn in our last issue. It is the most compact, convenient and handy carrier we have ever seen, and in operation it is most simple and effective. The overhead track, of which the end is seen in the illustration, runs the whole length of the cow stables, just behind the cow stalls. It is carried by hangers from the roof. On this track the manure hopper is suspended and runs on wheels. By a simple contrivance easily operated by one man the hopper can be raised or lowered to receive the manure. When filled it is run along the track out of the door at the head of the stable, and then, as shewn in the illustration, the manure is dumped into the w gon at one operation by simply pulling a release spring. By the use of this arrangement much hand labor is saved, and if hauled to the field at once, only one handling by fork is necessary.

ECONOMY IN FEEDING PLANTS.

Editor Southern Planter:

If the wastes of the average farm could be converted into cash each year what a difference they would make in the farmers' bank account. The trouble is though, that not one in ten knows how these leaks occur, hence their stoppage is extremely difficult.

Economy in all departments on the farm is naturally the only remedy, but knowing when and how to practice the economy is not the most simple matter in the world. In nine cases out of ten, when a farmer wishes to cut down expenses, the first move he makes is to reduce his fertilizer bill. This is the proper step sometimes, but it will always be worth a farmer's while to make a little investigation before taking such a radical step. The farmer thinks that because he is spending two hundred dollars a year for fertilizers he can save that amount which he considers extra expense. Now, if the expenditure of two hundred dollars does not pay interest on the investment, then, by all means, cut it off. On the other hand though, if two hundred dollars produces an increase in the crop equal to more than the outlay, then it would be poor economy, or rather stupidity, to try to lop off expense in that direction. As a matter of fact, this money would not represent an expense, but should be considered an investment with strong chances of proving profitable.

What really should be done by every farmer is t^{o} try and find out if the money invested for fertilizer is bringing as much profit as it should. In other words, endeavor to learn if he is using the cheapest and most available forms of the three essential fertilizer ingredients—nitrogen, phosphoric acid an·t potash—and applying them at the time, and in the manner and proportion to produce the highest returns. These points are of great importance because it is a known fact that very good land may fail to produce paying crops if bad judgement is used in feeding the crops.

It is not only necessary to study the needs of the crops so far as their requirements of nitrogen, phosphoric acid and potash are concerned, but is equally important to study the individual action of each of the different forms of these ingredients on every crop, and the nature of the sources from which they are derived. For example, tobacco needs nitrogen, and plenty of it. Now, stable manure is valued principally for its nitrogen, but if put on tobacco, stable manure produces a heavy thick leaf of inferior flavor and poor burning quality. On the other hand, nitrate of soda, which is a readily available quick-acting form of nitrogen, makes a clear leaf of excellent aroma and flavor. With Irish potatoes, a somewhat similar experience is met with. Barn-yard manure cannot be safely used to supply nitrogen, because being a perfect hiding and breeding place for microbes, which produce "scab" in potatoes, they bring about this dreaded disease. Truckers, therefore, usually depend on a chemical form of nitrogen, like nitrate of soda, which is pure and at the same time soluble and quick-acting—two qualities of importance to those engaged in raising early vegetables for the market. Similar illustrations can be made with potash and phosphoric acid. On oranges, and tobacco for example, forms of

potash, like muriate of potash, which contains chlorine, have to be avoided, and sulphate of potash employed instead. With phosphoric acid, care has to be taken that the material is readily soluble and available to the plant at a time when needed, otherwise the crop will suffer for lack of nourishment. Availability has much to do with regulating the size of the crop. There are times, especially during dry weather, when, if the crops can get a little digestible and stimulating food, it will tide them over for the time being and prevent a failure. Nitrogen is usually called on for this purpose, but as there are a number of forms, discrimination has to be practiced. Ground meal, leather scraps, etc., furnish nitrogen, but these are so slow-acting that the plant would actually starve while waiting for them to rot first in the soil and then become available. The most soluble form of nitrogen is nitrate of soda, which acts almost immediately, hence can be applied at those periods when the crop is beginning to show signs of lack of vigor. This gives it a fresh start and hastens it on to maturity. No farmer can expect to get the best returns from his soil, if it is in need of plant food, without studying carefully the properties and actions of each of the nourishing ingredients.

It has been truthfully said, "Fertilizers are like improved weapons: They show their full value to those who best understand their use."

P. J. CHRISTIAN.

IMPROVING SWAMP LAND.

Editor Southern Planter:

I read, with much interest, the inquiry of Mr. W. T. Hopkins, of Washington county, N. C., in your October issue, and the reply of Mr. Massey. I do not know the exact location of Mr. Hopkins' plantation, but think that he is at the northeast end of the same swamp in which my plantation is located. It may be, therefore, that my experience will help him. I had on my farm seventy-five acres of land where the original growth had been cypress, poplar, black gum, a few sweet gums and pine, both small. It was cultivated for twenty years in corn, with a few experiments in cotton, and then it would spot badly and yield only about three hundred pounds of seed cotton per acre.

In times past, the land has evidently been burned over, as in spots the plow will run into what appears to be a bed of ashes or burnt matter. This land in 1883 and 1884 yielded about fifty bushels of rice per acre, some yielding as much as seventy-five bushels per acre. After that, the best crop we could get would be about ten bushels of corn per acre.

The consequence was that no one would cultivate it, and it was turned out, and became an eye sore and disgrace to any place. In 1894, I began to experiment. I broke up fifteen acres with a two-horse plow, the land turning slick, being very light and chaffy, and with no clods. I then planted in cow-peas, which I picked. The next spring I applied burned oyster-shells at the rate of fifty bushels per acre, and sowed in spring oats (here I now know that I made a mistake, as subsequent trials show fall oats to be the best). After the oats were cut, sowed cow peas, and found that, instead of bull grass, I had a large percentage of crab grass mixed with the bull grass and peas. I then applied another dressing of burned shell at the same rate and planted in corn, fertilizing with two hundred pounds of acid phosphate and one hundred pounds of kainit to the acre. Yield, twenty-five to thirty bushels of corn per acre. When I laid by the corn, sowed peas in the middles. Followed with oats and then peas, in both instances cutting about one ton of fine hay per acre. Then I tried cotton, fertilizing with two hundred pounds of acid phosphate, one hundred pounds of kainit, and fifty pounds of cotton seed meal to the acre. I find the land constantly improving. This year I have threshed thirty bushels of oats to the acre, and from the same land cut fifteen hundred pounds of fine hay. From that part of the land which is in cotton I will pick nine hundred pounds of seed-cotton per acre, and will gather thirty bushels of corn from that part in corn, although from the middle of June to the 23rd of August there was not a good rain on my farm, not enough to start the ditches, and they have been dry the season through. In July, before the effect of the drought was so severely felt, I confidently expected eight to ten barrels of corn and a bale of cotton per acre. With a proper selection of seed, so as to get a variety of corn suited to our climate, and proper care of our lands, I believe that we can get from all of our swamp lands at least sixty bushels of corn and a bale of cotton per acre under field cultivation.

I am now adopting a three years' rotation as follows: Oats followed the same year with peas, which I cut for hay, and the next year cotton, with plenty of acid phosphate and kainit, then corn. I believe that after our lands have been once limed thoroughly, so as to take the sourness out, that it will be best to follow the so-called English plan, and apply a small amount of lime every two or three years, instead of large quantities at longer intervals.

I write from practical experience, and hope that Mr. Hopkins may find it as greatly to his advantage as it has been to mine.

Washington, N. C. WILL. B. RODMAN.

MAKE YOUR OWN EXPERIMENTS.

Editor Southern Planter :

The reports of the experiments of others in different methods of tilling the soil, and in the use of manures, and in growing different crops or different varieties, have always been only partially satisfactory to me, and after obtaining all the advice and information possible, I have at the same time for many years been in the habit of setting aside a certain part of my grounds for small practical experiments of my own, and in my own way.

There are differences of soils, difference of opinions upon many subjects, and a great difference in the manner of planting, cultivating, etc., which a farmer can only determine by his own practice.

I set aside sufficient ground that the different manures will have effect, and the different varieties sufficient room, and the different systems of culture be complete.

First, I always plow eight to ten inches deep, and cover under all the manure and refuse I can get. I never burn anything, but make it rot.

Then in strips of about twenty-five feet wide, and across the field, so as to cultivate with a mule, I plant the different varieties of corn, potatoes, cabbage, celery, beans, greens, etc., and carefully cultivate exactly alike to determine which variety or style of planting —thick or thin seeding—I prefer. This is to determine varieties.

To determine manures, I manure in one way for twenty-five feet—in another way, the next twenty five feet, and so on, and plant the same variety right across these manured lots.

This indicates without further detail the method in general, and will suggest to the farmer how to make his own experiments, and these will be much more satisfactory and conclusive than those done by others.

New York. S. S. BOYCE.

STRAY NOTES.

Editor Southern Planter :

I am glad to see your notes on liming land, for there is still a great deal of ignorance in regard to the true use of lime. There is one point, however, that I would like to note. This is, that a frequent and light application of lime is far better than a heavy application at longer intervals. This is especially true where there is a short rotation followed, and the legumes are brought on the land frequently. I would far rather use 15 bushels per acre once in three years than 30 bushels once in six years. One of the most important features in connection with the use of lime is the keeping up of a feebly alkaline condition in the soil, which favors the growth of the nitrogen collecting microbes, which will not grow in an acid soil. Then too the presence of freshly hydrated lime is essential to the rapid nitrification of the organic matter left in the soil by the legumes. With lime frequently and properly applied, I feel sure there would be no more "clover sick" land.

SAWDUST AS A FERTILIZER.

I have no serious objection to what "Exodes" says, but I think that a farmer can use his labor and time far better than hauling sawdust.

SMALL FARMS.

A small farm may be the "ideal existence" for the man who wants to be the head hand on the place, and a small farm so situated that it can be used as a market-garden may pay very well. But in ordinary farm crops, forty acres and a mule will furnish about as slavish an existence as any man need wish for. The praise of small farms we see so much about, looks to me like very poor business. If a man has not capital enough to manage a large farm, of course he is wise not to atttempt one, and in his case the small farm may be best. But there is not the slightest doubt that a large farm, carried on in a business-like manner, and using all the mechanical aids that such a farm can use, and which the small farm cannot, can grow crops at a lower cost than the small farm, and can make money at prices that would ruin the small farm. There is room for administrative ability on a large farm, and men seldom make a great deal of money by their own labor, but by what they can make on the labor of others. Some men are only fitted for small affairs while others would be cramped by small surroundings. The late Orris Browne would have been "cramped, cabined and confined" on a small farm, but made a large plantation pay handsomely and better than most small farms per acre. It is, after all, a matter of capital and administrative ability. Some men are born for the ranks and others to be generals.

MAKING MANURE.

Your Sumter Co., S. C., correspondent, answered by Mr. Boyce, tells the whole story in regard to the Southern cotton farmer, or rather the majority of men who are growing cotton and imagine they are farming. "Where are we to get the manure when a few mules is all our stock, and we only raise cotton?" This is the whole trouble about the so-called farming of the cotton men. They are merely planting cotton, and are not farming at all. While all the Southern towns and cities, of any size, are depending on Chicago for fresh meat, and the country all about them can grow in the greatest abundance the best of food for stock, and could, if they tried, make the finest of beef, the farms

have only a few mules and grow nothing but cotton, and depend on the fertilizer man rather than the soil for that, and when it is made they must sell it no matter what the market, for the fertilizer bills must be paid. And the land gets no better year after year. They grow nothing but cotton, and most of them not half a crop of that, mainly for the reason that the cotton planters are acting as agents for the fertilizer makers and are not farming at all. The idea of a farm with nothing but cotton, and no animals but mules, and these mules to be paid for out of the cotton crops too, for mules raise no colts, shows just what is the matter with the Southern farmer in the cotton country. When he can grow the finest hay in the world from the cow pea, and can feed beef cattle in droves if he would, he wonders where he is to get the manure. With only a few non-breeding animals, the cotton he grows is taxed with the very animals that work it, when he could keep some mares and make money out of colts, even if they were mules. Verily, there is little hope for the cotton country 'till the men on the farms learn to farm.

W. F. MASSEY.

WHEAT SEEDING.

Editor Southern Planter:

At the present writing, September 27th, many farmers in Georgia are sowing wheat. There need be no undue haste in this matter, and these farmers had much better be working over their seed bed for two or three weeks yet before planting.

I shall not sow until after the 15th of October. Any time from then to the 1st of December will do nicely. I prefer to wait until after the first good frost, for then there is less liability of injury from the fly, and this time can be very profitably used preparing the land.

I shall plant my wheat on a corn and pea vine stubble. The peas were sown in the corn at the last plowing, and have made a rank growth, as also have the crab grasses. This I have cut for hay, and as the stubble is too heavy to work up well with a cutaway harrow, I am replowing it shallowly across the rows, and shall work the land over about once a week until I am ready to plant. Part of this land I am fertilizing with 400 pounds to the acre of a chemical fertilizer consisting of phosphoric acid and potash, and part I shall leave unfertilized in order to note the difference.

Mr. W. P. Walker, of Griffin, Ga., this year grew fifty-eight bushels of wheat to the acre on three acres, and an average of fifty-three bushels to the acre on fourteen acres. His wheat was fertilized with 400 pounds of fertilizer to the acre, made of half cotton seed meal and half acid phosphate. Such fertilizing must involve a great drain on the potash in the soil; and while his land evidently contains a large amount of this element, it is doubtful how long such a drain can be kept up without a serious falling off in the crop. I regard it better farming to expend the money he has spent for ammonia in purchasing phosphoric acid and potash. While wheat undoubtedly contains a great deal of nitrogen, still this can be obtained very much cheaper through the growing of leguminous crops.

To give you some idea of what the growing of such crops will do to increase the yield of wheat, I will give you the experience of one of my neighbors. In 1899, he made eighteen bushels of wheat to the acre on five acres. A crop of cow peas was then grown on the land and followed by wheat again. This year he harvested thirty-eight bushels of wheat to the acre on this same land; after which he sowed it again to peas, and expects to follow with wheat this fall. The only trouble with him is, he has used too little potash on his pea crop, and the growth of vines is not what it should have been. His land is of a sandy character and needs potash.

If we want large crops of wheat we must grow large crops of cow peas, and cow peas need chemical fertilizers. I prefer to use the bulk of these fertilizers on my pea crop to putting them directly on the wheat, although they will pay on the latter crop also.

At the meeting of our State Agricultural Society, at Dublin, Ga., in August, while in conversation with the brother of the Hon. Pope Brown, president of the society, he informed me that it had paid them to use potash on wheat, and, in fact, for most other crops. Their soil is of a sandy character, like the majority of the land in the lower part of our State. On all such land potash always gives marked results.

Fulton County, Ga. F. J. MERRIAM.

[Though too late to be of help to our subscribers in this State and North Carolina, this article will be of service to our more Southern friends.—ED.]

COST OF PLANT FOOD.

Editor Southern Planter:

Before it is possible to closely count the cost of plant food, we must first plainly understand what plant food is. The whole sum and substance of this is, that plant food is the united action of three substances—*nitrogen*, *potash* and *phosphoric acid*. Notice that it is their united action which constitutes plant food. Nitrogen alone cannot grow crops, nor can nitrogen and potash, or nitrogen and phosphoric acid—all three are needed, working together. Further, these three substances must be in such form or condition as to be soluble in the moisture of the soil. Shoe leather, for example, contains about 8 per cent. of nitrogen, yet

it is of little value as plant food because it is insoluble and plants cannot get hold of it. Similarly, potash in particles of granite, mica or spar is of little value. Raw phosphoric rock is also of little practical use under average farming conditions.

Having once clearly in mind just what plant food is, we will next take up its various forms. The elements of plant food (nitrogen, potash and phosphoric acid), nearly always exist associated with other substances of little, if any, value to growing plants; the soda of nitrate of soda, sulphuric acid of sulphate of potash, etc., are fair examples. These mixed forms are always used in agriculture because they are the cheapest sources of the desired materials, and are substantially as useful as the pure substances would be if applied to the soil.

The cost of plant food depends on two main points; the actual cost as applied to the soil, and the unavoidable waste through improper mixing of materials. In the markets, nitrogen costs in one of the best, because the most available, forms (nitrate of soda), about 15 cents per pound when delivered on the soil; potash also in the best form (German potash salts), costs about 5 cents per pound; and phosphoric acid, under like conditions (acid phosphate), about 5 cents per pound.

It is a very common thing for farmers to pay too much for plant food, and this is true when farm yard manure is bought. To illustrate, a ton of average farm yard manure contains

10 lbs. nitrogen, at 15 cts.....	$1 50
10 lbs. potash, at 5 cts...	50
4 lbs. phosphoric acid, at 5 cts.....	20
	$2 20

Not one of these elements in the form of farm-yard manure is worth as much as available plant food as if in the form of the most available fertilizer chemicals, yet the cost is greater. Very few farmers or planters can buy such manure, deliver it on the farm, and spread it properly at less cost than $3.50 per ton. This will serve to illustrate how necessary it is that rough fertilizer materials should be valued before purchased. Of course the manure made on the farm is entirely a different matter, as it costs only the labor of distribution. At the same time, keeping stock merely for the purpose of making manure rarely or ever pays.

The most frequent occasion of paying too great a price for plant food is where the fertilizer is improperly proportioned. In broad terms, the plant food needs of a crop are pretty much those indicated by the chemical analysis of that crop. For example, a crop of 80 barrels of potatoes contains nitrogen, 30 lbs.. potash, 40 lbs., and phosphoric acid, 10 lbs.

Suppose for this crop a fertilizer is used containing 4 per cent. of potash and 8 per cent. phosphoric acid, (the nitrogen for this crop is supposed to come largely from legumes clover turned under as green manuure.) Now, in the use of plant food, the crop-making power of a fertilizer is that of its weakest element. If there is potash for 10 barrels per acre, nitrogen for 100 barrels, and phosphoric acid also for 100 barrels, the crop will be only 10 barrels, as there is no more potash to accompany the other two elements. For such a crop as cited above, 1,000 lbs. of the fertilizer will supply the necessary potash, but this quantity will also supply 80 lbs. of phosphoric acid, 70 lbs. more than is required. The 1,000 lbs. of fertilizer will cost about $6 00, of which the waste phosphoric acid represents $3 50, or more than half the total cost.

In this illustration, the lines are somewhat finely drawn, but the point is best illustrated thus. The farmer or planter may greatly reduce the cost of his fertilizer by going at the subject intelligently. The analyses of various crops can be obtained from almost any Experiment Station, and should always be consulted before buying the fertilizer to be used for their production.

Moore Co., N. C. BRYAN TYSON.

LEGUMINOUS CROPS AS NITROGEN PRODUCERS.

Dr. Stabler, of Maryland, sends us the following interesting article, read recently by him before two of the county Granges of Maryland. He enforces, by example and precept, the system of growing leguminous crops, which we have so long and so strongly advised. We commend the article to the attention of our readers:

"At the Rockville meeting of this grange last year I advocated as a general plan in producing forage crops to combine a legume with a cereal in every case, and to arrange for two crops a year on each piece of land, so as to attain the maximum of production with variety of feeds and balanced rations, and at the same time improving the mechanical condition of the soil, annihilating weeds, preventing washing, leaching and evaporation from the soil, and storing up nitrogen and humus in the soil. Another year's experience and study has confirmed my faith in the general applicability and usefulness of this plan, and I am convinced that it offers the best solution of the great nitrogen problem: 'How can the farmer, be his farm great or small, improve his land and make it support more stock without purchasing nitrogen?'

"The writers who advocate balancing rations with purchased feed have succeeded in putting down the price of butter and putting up the price of bran. The dairyman certainly would like to reduce his feed bills, even if he could not increase his stock, and the grain farmer would like to reduce his fertilizer expense if he could do so without impoverishing his land. As I belong to the first class, the dairymen, I have been chiefly

interested in practically working out the problem for the dairymen on the Atlantic Slope south of Mason and Dixon's line. I do not know but the time may come when this gospel may invade Pennsylvania, and even the 'United States of Ohio.' Throughout the United States corn always has been the most productive single crop, whether measured by pounds of grain or tons of digestible nutrients to the acre of rich land, but it does not pay on poor land, and the dairyman who attempts to feed a herd of cows on corn alone, even if preserved in the best manner in a silo, is forced to consider two serious difficulties: First, a cow in full milk requires two and a half pounds of *protein* a day or she will fall off in either flesh or milk, and as corn contains comparatively little protein she would have to eat an enormous amount of corn in any form to furnish the protein she needs, and, consequently, on this diet it is less trouble for her to dry up and get fat. Second, as corn draws all its nitrogen from the soil and requires frequent stirring of the soil if grown alone, it soon exhausts the soil of humus and nitrates and increases washing, leaching and evaporation from the soil.

"Again, corn needs a long season to grow, and in this latitude one has to rush to get it out of the way in time to seed the land to a winter crop, and the winter crop does not come away in time to plant corn again. The first difficulty, that corn is not rich in protein, may be partially met by selection of seed corn. The corn that the Mexicans use for bread is nearly as rich in protein as our wheat, and I am satisfied that the chemical composition of the corn kernel has been much reduced in quality by the practice of selecting the softer kind of corn for seed because it is easier for the teeth of horses and hogs to grind, and because it measures more barrels to the acre than the harder and heavier kind. An old lady tells me that when each farmer used to have his own corn ground at the small water-mill it was the practice to select the heaviest and soundest flint corn to make meal for home use, and the meal that one buys now is quite a different article. At the Illinois Experiment Station it was found that the percentage of protein in the kernels of one variety of corn (Burr's white) varied between 7½ and 16 per cent., and they could tell by simple inspection of a few grains from each ear which ears had a high and which a low percentage of protein. That one ear of good, sound corn has been found containing over 16 per cent. protein is very encouraging, for we know that corn is no exception to the law that like produces like. But as in the production of pure stock it is necessary to begin with one or two individuals of decided merit and avoid mixing and crossing till the desired character is firmly fixed. This difficulty may be partially met, also, by feeding the plant liberally with nitrogen. Professor Attwater, at the Connecticut Experiment Station, found that in every case an application of nitrogenous fertilizer to the soil increased the quantity and protein content of the corn crop. The corn which received no application of nitrogen contained 10 per cent. protein (which is about the usual average), while the same corn that received an application of 75 pounds of nitrogen to the acre contained 12 per cent. of protein.

"Striking results were obtained when nitrate of soda was applied to the grasses, such as timothy, red top, orchard grass and brome grass. Here the protein was increased from 7½ per cent. where no nitrogen was applied to 12½ where 75 pounds of nitrogen were applied to the acre. Now, as Professor Taliaferro has told you, there is seldom less than 75 pounds in the soil of an acre of land where a good crop of cow-peas, clover or vetch has been harvested, and the stubble and roots left, our plan provides for producing not only the greatest quantity of forage, but forage containing the highest possible per cent. of protein in the cereal plants. If we had corn containing 12 per cent. of protein, and clover, cow-pea or vetch hay containing 12 to 15 per cent., we need only give the cow five pounds of corn meal, 12 pounds of clover hay and 20 or 25 pounds of cut corn fodder to make a ration that is quite sufficient for a 1,000 pound cow in full milk. In looking over a table of the composition of feeding stuffs in the 'Bulletin on Feeding Farm Animals,' from the Department of Agriculture, I notice that the average for vetch hay is 17 per cent., and that it is sometimes as high as 23 per cent., and that one of our native legumes, the beggar weed or flat pea, is the richest of all forage plants that yet have been tested, containing 8.7 per cent. protein in the green fodder and 23 to 27 per cent. in the hay. So that a cow would have to eat less than five pounds of this hay for each pound of protein required. And yet we are sending to Minnesota for bran, to Chicago for gluten meal, to Iowa for linseed, to Georgia for cotton seed, and around Cape Horn to Chile for nitrate of soda, when a native plant, which we revile and spurn, if fostered, would cheaply supply the need. At the Pennsylvania Experiment Station (report for 1897–98) in a test of 10 plats of leguminous plants the beggar weed or flat pea produced the largest quantity of nitrogen to the acre. The nitrogen in the crop, tops and roots, was as much as would be contained in 1,500 pounds of nitrate of soda to the acre. In this test the cow pea was not included, because at that station it has not proved successful, probably because planted too early.

"Next to the flat pea comes white clover, which is another one of our wild plants. It gathered nitrogen equivalent to over 1,000 pounds of nitrate of soda to the acre. In this test the spring vetch was considerably ahead of the winter vetch or the Canada field pea, and crimson clover, alsike clover and medium red clover average about alike and about the same as the spring vetch, which gathered nitrogen equal to about 800 pounds of nitrate of soda to the acre. On the subject of vetch I would like to call your attention to a bulletin (No. 105) from the Alabama College Station, on 'Winter Pasturage, Hay and Fertility Afforded by Hairy Vetch.' Hairy vetch is considered an especially valuable forage plant for the South, as its culture does not in any way interfere with the regular farm crops, and it is valuable either as pasturage, hay, or a green manure crop. Sown in September or October, alone or with winter oats, it furnishes pasturage during the following February, March, April and May, and if not grazed too closely affords a cutting of hay from April 20 to May 10. Its growth during the winter months serves to prevent leaching and washing and adds greatly to the supply of soil nitrogen. Specific directions are given for securing the growth of the plant on land where it has not been previously grown by the aid of nitrogen inoculations from old hairy vetch or

English field peas and by replanting on the same land. A special study was made at the station of the most suitable time to cut hairy vetch for hay and for using as green manure. The cutting that was made May 2, when the plant was in full bloom, yielded the largest quantity of hay, which when dry contained 17 per cent. protein and 6 per cent. of ash, and weighed very nearly three tons to the acre. It is calculated that the vines, roots and stubble from an acre harvested when the plant was in full bloom would be equivalent to the nitrogen contained in 2,571 pounds of cotton-seed meal or 180 pounds of nitrogen. The total nitrogen content of the plant increases with the stage of maturity.

"A brief account is given of growing corn on plats where either the entire growth of vetch, the stubble of vetch or the entire growth of rye or the stubble of rye had been plowed under. The yield of corn in 1898 was at least 50 per cent. and in some instances 100 per cent. greater on the plats where vetch or vetch stubble had been plowed in than on the plats where rye had been plowed in. There was but little difference in the yield of grain whether the entire vetch plant or only the roots and stubble were left on the land. Where silage corn was grown the yield per acre was two and three quarter tons less per acre on the vetch stubble plats than where the whole plants had been plowed under. This superior yield of silage corn was more than offset by the 3,600 pounds of vetch hay per acre obtained from the vetch stubble plat. This contained a greater amount of dry matter of better quality than that in the two and three-quarter tons of silage corn. Mention is made of the possibility of the plant becoming a weed, but I would remark that a *weed* which produces three tons of hay to the acre, that is one third richer in protein than clover hay, which grows in the winter and after being harvested for hay increases the following corn crop 50 to 100 per cent., may have all the room it wants on my farm. The only crop with which it could possibly interfere is wheat, and as vetch seed is at present five times as valuable as wheat I would like to have plenty of it, even if I had to employ chickens to separate the tares from the wheat.

[TO BE CONTINUED.]

HAULING MANURE OUT ON THE GRASS.

Editor Southern Planter:

Repeatedly have I seen in agricultural papers the advice given to farmers to haul the manure out on the grass, either on the pastures or on the grass stubble, instead of piling it up in the barnyard for future use. For farmers who do not take good care of their manure, but let it burn or leach out, this certainly is good advice; but where the manure is well taken care of, I must say that I do not understand what is accomplished by it; for the benefit which the soil derives from properly turned under manure is so great that even the small loss in the barnyard, which can never be entirely avoided, is more than compensated for. Not only does the manure, when applied in the proper state of decomposition, improve the physical condition of the soil, but as a source of carbonic acid which is taken up by the soil moisture, it helps to make a considerable amount of plant food available, the greater part of which is only soluble in carbonated water. This very important part which the manure performs in the soil is entirely lost when it is spread on the surface.

But irrespectively of this, the question arises, Can the manure be spared?, and to judge from my own experience, I must say I do not think so; because on most farms where crops can not be raised without manure, there is hardly enough made for the paying growth of other crops, to say nothing of applying some of it on the pasture or the grass stubble.

On all farms where the soil is alternately laid out as a pasture for two or three years, as the case may be, the pasture is not only considered as an improvement of the soil, but the pasturage as well as the grass crop is relied upon as a net income, and very few farmers would be willing to spend any money on it in the form of manure or fertilizer unless very good reasons justify this expenditure. So, for instance, in the neighborhood of large cities, where the milk can be sold directly to the consumers at profitable prices. In this case everything which will promote the growth of the grass, especially during the hot season, must be done, and if this can be accomplished by top dressing the pasture with good horse manure (cattle manure is objectionable to cows) it certainly should be done, even if the greater part of it has to be bought and hauled from the city; or, if a field has been laid out in clover and grass, upon which crop the farmer must depend for his hay, and the crop shows a poor stand, as there is nothing which can take the place of good manure, though there may be a good many substitutes, so there is nothing which can take the place of well cured hay, cut in time while the stem is tender and juicy. As far as the nutritive value is concerned, there are a good many crops or mixtures of crops which may even surpass it, but the digestibility and tastefulness of fine hay, especially for young stock, is unsurpassed, and no other crop possesses the pleasant aroma, which again is so important in the manufacture of fine table-butter. If the farmer depends for the hay upon this crop, as great many do, and there are signs of a failure, it is perfectly proper to top dress this crop, and in this case, cattle manure, though not as good as horse manure, may be applied in winter. But these are exceptions to the rule. Another point which has to be taken into consideration, if the manure is hauled out on the grass stubble after the first cut has been harvested, is that most farmers depend upon the pasturage of this field just at that very time. The pasturage gets very scarce in August and the early part of September, and most farmers need this

field, in addition to the other fields, to prevent the cows from losing too much milk, so that the applying of manure on the pasture or the grass stubble is equivalent to the loss of so much pasture just at a time when the farmer is most in need of it. On some farms, the grass is cut twice the first year, but that can only be carried out on very rich land on account of the too great impoverishment of the soil, which would seriously affect the following pasture. If both cuts are needed, then it is a great deal better to have an extra pure clover or grass crop taken as a regular crop into the rotation. On light and poor soils the grass is often not cut at all, because it would impoverish the soil too much, and, as has already been stated, the hay crop is provided for in some other way.

In order to obtain a good hay crop and good pasture, the crop preceding the grass should be heavily manured. If the soil is weedy, a hoed crop, such as beets, potatoes, corn, etc, will answer best, because the preparation of the soil for these crops, especially for the root crop, is of the greatest benefit to the grass crop. If the soil is fallowed or little infested with weeds, and beets and potatoes are grown only in very small quantities—the corn having been placed somewhere else in the rotation—a leguminous or a mixed crop can take the place of the hoed crop. In this case, manure should not be too heavily applied in order to prevent a too rank growth of the vines; but if the soil is in need of manure, phosphates and potash may be substituted for a part of the manure for which all leguminous crops have a strong demand. These crops will then be followed by a grain crop, such as wheat, rye, barley or oats, seeded with clover or grass in spring or in fall, as is customary in the Southern States. H. WINKELMAN.

District of Columbia.

HEMP EXPERIMENTS.

Mr. Boyce informs us that two facts have been conclusively shown as the result of hemp-growing upon the east coast the past season. One is that a variety known as China American is immensely the best for fibre, and another that it is eminently practicable to ret hemp in wooden tanks and produce a fibre equal in fineness to any produced in Europe.

A greater number of horses is reared in Russia than in any other country of the world. The United States ranks second, Argentina third, and Austria Hungary fourth.

There are said to be 800 known varieties of wheat in the world.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Elders and Briars—How They May be Subdued.

What do you consider the best method to subdue elders and briars in permanent pasture lands? The usual plan here is to cut them with a scythe in the summer or fall (August is a favorite month), but it seems to do little toward exterminating them. I have read that cutting them with a heavy hoe at the top of the ground in winter when the ground is frozen will be beneficial. Do you think it will? Our briars are mostly blackberries.

Tazewell Co., Va. G. M. MULLIN.

Keep them cut off at the surface of the ground, and the roots will certainly die. No plant that makes green leaves can long exist without them. Summer cutting gives the most serious check to any plant, but if the bushes are only cut annually they will never be exterminated. When allowed to make leaves and grow, they make more roots and take on renewed vitality. One of the best plans is to go through the bushes during the summer and beat and bruise them without cutting. This will kill sassafras sprouts a great deal more rapidly than cutting, as the beaten and bruised tops ferment and decay, and the roots, which are the product of tops, will certainly suffer. The destruction of bushes and briars would be more speedy if all would remember the fact that roots are made by tops, and not tops by roots, and that without healthy tops there can be no root growth. Hence, I would chop off the briar when the ground is frozen—when they start in the spring, and whenever they show their heads during the summer. If you do this, the roots will die, but if you leave them for weeks to make fresh tops you will never kill them. August is a good time to cut off briar tops if you cut them every other month, but if you only cut in August, the briars will be happy and grow the next season, for by August they have grown all they care for that season, and as blackberry roots are full of adventitious buds, there will be plenty of tops there for the next August cutting, if you let them grow till then, and the August cutting will have accomplished nothing but an increase of the number. The time to cut bushes and briars is whenever they show a green shoot above ground. W. F. MASSEY.

Kindly tell me if more black peas can be grown per acre sown broadcast or drilled two and a half feet in rows and cultivated. What would be the proper quantity per acre broadcast to get the best results?

Matthews Co., Va. DANIEL RICHARDSON.

More peas can be grown per acre by sowing in rows and cultivating them. To get the best results in seed when sown broadcast, we would not sow over one bushel per acre, and if the land is strong, three pecks will do. For hay, on strong land, it will be better to sow a bushel and a half per acre, since the stems grow too stout on strong land when sown thinly. But if seed is the main object, they should always be sown in rows and cultivated. On good land, the black pea usually grown in Virginia will cover the ground in rows three feet apart, or even more.

W. F. MASSEY.

Fall Planting of Irish Potatoes—Fall Seeding of Sugar Beets—Grafting—Walnuts and Pecans—Spaying Sows.

1st. In the fall planting of potatoes, should they be cut? Or, if planted whole, should the small or large tubers be used? Seed from crop planted about June 15th.

2d. Would the sowing of sugar beet seed in the fall, as suggested in the May number of the *Planter*, likely prove profitable in the southeast part of Mecklenburg county, Va.?

3d. Should twigs for grafting be taken from the top or sides of a tree?

4th. I wish to propagate English walnut and pecan trees for private use. Where can I get the nuts, and when should they be planted?

5th. Is spaying really practicable, and would a sow so treated fatten faster than one that is not?

Mecklenburg Co., Va. A SUBSCRIBER.

1. In planting seed of the first crop for a fall crop, we cut a small piece off and then spread the potatoes and cover with straw kept rather damp till they sprout. For a fall crop planted in June or July, we would use the seed potatoes of the previous fall growth, and would place them in full light to keep the sprouts short and green for a month before planting, and then would cut them in large pieces.

2. We have never tried the fall sowing of sugar beets, but intend to experiment in that line. My opinion is that February sowing would be best here. But sugar beets for sugar will never be a success in your section of Virginia or in this State, and for cattle food we can grow ensilage of the same feeding value for one-third the cost of beets.

3. Good shoots of the present year's growth may be taken from any part of the tree.

4. If you get the nuts as soon as they are imported by the dealers and plant them at once, they will generally do very well. There are some parties in Louisiana who are making a specialty of large pecans, and are selling nuts and trees, but I do not remember their address. Better get the pecan trees than plant the nuts. They will be a good part of a lifetime in coming into bearing, at any rate.

5. I did not know that any farmers anywhere doubted the practicability of spaying sows. A spayed sow will, of course, fatten faster than an open one, and in making pork from sows they should always be spayed. There are usually skilled hands at the business in almost any section.

W. F. MASSEY.

Sheep Manure.

What is the chemical analysis of fresh sheep manure? My sheep are confined in a small enclosure at night, and I can collect in a short time a considerable quantity of manure. How can I best preserve it for future use? What commercial fertilizers would add to its efficiency as a fertilizer for wheat, corn and grass? I am using it this season mixed with Tennessee phosphate for wheat.

Augusta Co., Va. W. B.

Sheep manure, solid and fresh, has 0.55 per cent. of nitrogen, 0.15 per cent. of potash, and 0.31 per cent. of phosphoric acid. The best way you can use it is to take it out and spread it as fast as made on land where some plant is waiting for it. When I was farming not far away from you I made it a practice to haul out manure every day, as I kept a large stock. This may not be practicable where less stock is kept, but manure of any kind is not a thing to hoard. In Augusta county you will always have grass that the manure can be spread on, and no matter what any one may tell you about manure losing when spread on the surface, it will not lose a tithe of what it would lose in the barnyard. As to commercial fertilizers, use them in definite quantities, and use them alone and know what you are doing, and do not waste time composting them with the manure. It is true, however, that kainit and acid phosphate may help to preserve the manure that it is necessary to keep for awhile, as they will prevent the loss of nitrogen. Hence a daily sprinkling of these on the manure while in the pen will be good. But it is the waste of labor in piling and turning that I object to in ordinary farm practise. I never compost except for garden and greenhouse purposes. Haul the material you would use for compost and spread it where it will go to work. The sooner manure is gotten on the land where crops are growing the less loss there will be.

W. F. MASSEY.

Fungoid Growth on Peanuts.

I noticed in gathering my peanuts, when I came to a strip that I had in tomatoes about five years ago, on which stable manure was used for the tomato crop, that the nuts are eaten off or have the appearance of black rot; also on this strip the vines are about twice as large as on the other part of the field. I also notice, in digging the pea, where the nuts are all perfect and sound, no sign of this trouble, but on some of the nuts I find a white substance resembling mould or fungus. On pressing this with the finger, a sub-

stance somewhat resembling blood will ooze from this mould or web-like covering.

Is this latter, after becoming developed, the cause of the rot?

Some claim that wherever stable manure is used, the pea is affected in this way, but in this case it has been so long since the stable manure was applied that it is imperceptible only in the more vigorous growth of the vine.

A few claim that this rot is caused by the ground mole, but I am satisfied that is not the cause in this instance.

If you can give me some information in regard to this, I will be under obligations to you

Dinwiddie Co., Va. J. H. SIMMONS.

It is evident that the stable manure has provoked a fungus growth that finds the peanut a favorable victim. The extra growth of the vines shows an excess of nitrogen on the manured strips. We are unable to say just what the trouble is without a study of the fungus. It may be well to send specimens with the fungus you describe to Dr. B. T. Galloway, Department of Agriculture, Washington, D. C., for study and determination. The moles have nothing to do with it.

W. F. MASSEY.

Sheep Dung as a Fertilizer.

I have probably twelve or fifteen tons of sheep manure, and I want to know the kind of chemicals to use with this manure, and how much of the chemicals along with the manure to make a ton of fertilizer. I want to use this preparation for the potato crop next spring. I think that I will be able to use my fertilizer drill in putting this preparation down on the land. I used plenty of rich dirt with the sheep droppings, and I find that it can be made fine after being dug up.

Please answer in next number of *Southern Planter*, and oblige,

Norfolk Co., Va. W. J. HEARING.

Fresh sheep dung, solid dung, has 0.55 per cent. of nitrogen, 0.15 per cent. of potash, and 0.31 per cent. of phosphoric acid. What may be the analysis of the compost you have made of "rich" earth and sheep manure, no one can tell without a chemical analysis of the material. Of course if the urine has been absorbed as well as the excrement, there will be some added value. But to treat this material as a concentrated fertilizer, and dribble it with the drill, will be to place an uncertain quantity of manure in the soil. Far better spread the compost broadcast in a liberal manner, and then apply known quantities of the concentrated fertilizers to help it out where it will not reach. The sheep manure is not in a sufficiently concentrated form to make it pay to apply it in the small quantities we apply commercial fertilizers. At the ordinary price of the plant-food it contains, sheep dung would be worth about $2.10 per ton, and your compost would hardly be worth that much. So you see that it would be hard to make a drill fertilizer of sufficiently concentrated form with this low grade material. Applied broadcast at the rate of a ton or two per acre, it may be a fine application, but it is not concentrated enough to use in the drill.

W. F. MASSEY.

Harrows—Manure and Lime—Butter Cows.

Will you please be kind enough to inform me by first issue of *Southern Planter* which is the best harrow to use after the spading harrow to work the surface of the ground very finely, and at the same time cover the grain sown? What do you think of the Acme harrow for that purpose? What kind of sorghum would you advise to sow here for cows; the best for milk? How to begin with that culture so as to make a success; also with corn? Can I mix stable manure with lime and plow under after mixing; or which is the best way to do?

What is the best breed of cows for butter, and how many pounds of butter per week and per year will a good cow give? CHS. BELLERIVE.

Province of Quebec, Can.

For the purpose you name, I would prefer to use the spring tooth harrow, if the land is free from trash. But for the mere purpose of covering the grain, the Acme will be as good as any.

I suppose the Early Amber sorghum will be as good as any you can use.

When using stable manure and lime at the same time, spread the manure and put the lime on top of the land to be worked in in the cultivation of the crop.

The best butter cow is the Jersey. Cows vary individually, even of the same breed. If you believe the reports of breeders, there are Jerseys that make a great number of pounds per week, but in ordinary dairy practice the cow that will make you an average of a pound a day through the year is as good a cow as you can expect of any breed. Of course, cows may do better when in full flow, but in making the yearly average you must allow for the shrinkage of milk and the dry period. W. F. MASSEY.

Johnson Grass.

I wish to kill out some Johnson grass in lowland otherwise than by pasturage. Heavy sod. How?

Franklin county, Tenn. SUBSCRIBER.

You have propounded a query, the solution of which has puzzled many and beaten most of those who have tried to answer it. We confess that we are unable to solve it, except by the slow process of keeping the plant from making any leaves by destroying them as fast as they appear. Every green plant can be destroyed in this way. The root growth of this grass, or rather sorghum, is so persistent and wide-spreading that to kill it by cultivation is almost impossible, and to smother it by another crop is equally impracticable.

But why kill it? If cut early enough, it makes excellent hay and a great weight per acre, and is very nutritious, whilst as a pasture it is to rely on in the dryest season.—ED.

Cut-Worms.

What will destroy cut-worms in a manure pile?
Memphis, Tenn. H. MARTIN.

Mix kainit with the manure as it is made, or when composting it. This will kill the worms and improve the manure.—ED.

Sorghum Syrup.

I wish to get some good and late treatise on syrup making from sorghum.
Franklin county, Tenn. SUBSCRIBER.

There are two books published on sorghum—one, "Sorghum and Its Products," by F. L. Stewart, price, $1.50; and the other, "Sorghum: Its Culture and Manufacture," by Collier, price, $3.00. Either of these will, we presume, give you the information you desire. We can supply them.—ED.

Liming Land.

In the October number of *Southern Planter*, is quick lime or marl referred to in the article headed "Liming Land"? What do you think of marl burnt to half quick? Do you not think that 500 lbs. every year would be better than 1½ tons every six years?
South Carolina. SUBSCRIBER.

The lime referred to in the article in last month's issue was quick lime. Marl burnt is useful as an improver of land, but, unless on the spot, the freight is too costly for the use of it to be practicable. To do any good, the quantity required is so large as to make the hauling of it very expensive if it has to be brought any distance. We would certainly prefer to apply 500 or 1,000 lbs. to the acre each year to a much larger quantity every sixth year. Probably an application of 1,000 lbs. to the acre every third year in a three course rotation would be better than either alternative.

ED.

Pasture for Sheep.

I started to raise early lambs last year on my farm near Nokesville, Va. (Prince William county), and as I have only ninety-four acres I cannot at present carry as many ewes as I would like, on account of the scarcity of pasture and the lack of rains in northern Virginia during the summer. The farm is rolling, with a stream of pure water dividing it from adjoining farm. I have four fields of 28, 20, 18, and 25 acres, and 3 acres of bottom land, all in fairly good order and of a chocolate clay, very mellow and susceptible of improvement. Of course, the place was badly run down when I got it five years ago, on account of many years of tenant farming, but now it yields nearly 20 bushels of wheat and fairly good crops of clover and timothy. My rotation is corn, wheat and clover, the wheat receiving 300 lbs. to the acre of acid phosphate, 14 per cent., and the sod land intended for corn the little farm-yard manure I can make on the place from two horses, two cows, hogs, poultry and sheep. I am at a loss to know how I can supplement the pasture so as to carry at least 100 ewes and their lambs. Of course the lambs should be marketed when less than ten weeks old and sold not later than April 1st of each year. I had from 30 ewes last year 30 lambs, which averaged 56 lbs. at eight weeks, and were fed through a creep cracked corn and middlings as soon as they would eat. I lost three sheep and their lambs at yeaning. I realized on the lambs, which I sold to a drover, and the wool of ewes and ram $169. Now, if I had sold the lambs hog-dressed, I am sure I would have done better, as I had a good market at Washington, D. C. Please instruct me how I can arrange a system of catch or soiling crops, so as to give my sheep all they will need in summer. Can this be done without subdividing the fields and going to the expense of additional fencing? I have read the "Domestic Sheep"; also the "Shepherd's Manual," by H. Stewart, and have noted the folding business, but am afraid it would occasion too great an outlay. If you would inform me how you would do if you were in my place, you will confer a favor on me and a number of other sheep men in Northern Virginia. P. LUDDY.
Baltimore, Md.

The solution of your problem lies in the production of forage crops for the supplemental feeding of your flock. To do this would of course necessitate the division of at least one of your fields by fences, but it would certainly pay you to make this division. For your rotation you require three fields; the fourth, we presume, you keep for pasture. We would cut off ten or twelve acres from this pasture field with a fence, and divide this cut off portion into three fields. These three fields we would use for the production of forage crops, and would make the division so that either of the three could be used in connection with the pasture field. To be successful in producing early lambs for the Northern market requires that the ewes and lambs have good winter and early spring grazing, and also a succulent pasture for use during the dry months of the summer. Without this the ewes cannot milk well nor the lambs do their best, nor will the ewes come in use early enough in the fall to ensure winter and early spring lambs. One of the three fields should be seeded in the month of August with a mixture of German clover, Sand vetch, oats or wheat, and a sprinkling of turnip seed, say, two pounds to the acre. This will give you a pasture in winter and early spring. The second field should be seeded in March or April with rape and Sand vetch. This will give you a pasture to follow the other one in the summer. The third should be seeded in cow-peas in May, to be cut off for hay in July or August to supplement the winter grazing, and in August should be seeded again in rape for fall and early winter grazing until the German clover and the mixture advised for field No. 1 is ready to be

grazed. In this way you will always have a supplemental pasture for the sheep, and will be easily able to carry the flock you desire with the help of your clover field, after taking the first crop for hay. Lambs ready for the Washington and Northern markets in March and April should easily net you from $5 to $7 per head.—Ed.

Applying Acid Phosphate in the Fall—Sulphate of Ammonia—Bare or Covered Fallow.

1. Would there be any loss in now spreading acid phosphate on land being fallowed for corn and tobacco?

2. How does sulphate of ammonia compare with other sources of ammonia? Must it be applied to a growing crop, or some time in advance of planting?

3. Would it be better to sow rye and harrow on land for corn next season, or plow and leave the surface rough, as much as possible exposed to the action of frost? Old Subscriber.

Prince Edward county, Va.

1. No. It is a good plan to apply both acid phosphate and potash to land some months before the crop is planted. There is little or no loss by leaching, and the fertilizer is in a better condition for assimilation by the crop.

2. Sulphate of ammonia has an average content of 20.50 of nitrogen. This, however, is not quite so available as is the nitrogen in nitrate of soda, which, being already in the form of a nitrate, in which form alone plants assimilate nitrogen, is immediately available, and hence should only be applied to crops in a growing state. The relative availability of the nitrogen in sulphate of ammonia and nitrate of soda is as 90 to 100, as determined in a series of experiments.

3. This depends much on the character of the land. A stiff, heavy, clay soil would be more improved by being thrown up and left rough and exposed to the action of the frosts than seeded with rye and harrowed. A light soil would be better cared for and be put into better condition by having rye seeded and harrowed in.—Ed.

Grasses for Permanent Pasture in Eastern Virginia.

1. Will "Kentucky Blue grass" mixed with the spontaneous growth of "Bermuda" make a first class permanent pasture in the first, second and third peninsulas of Tidewater Virginia?

2. Will the Bermuda crowd out the Blue grass?

3. What in your opinion are the *best* grasses for a permanent pasture in that section—time, labor and economy as to cost of seed, seeding, etc, being taken into consideration?

4. In Westmoreland county, I have been told, they have no trouble to keep down the Bermuda in their corn, but when Blue grass gets in, it takes the land. What kind of Blue grass is this? In connection with this in that section, I noticed that corn land that had lain out for several years (presumably from the fact that this Blue grass had taken it and made it unprofitable to cultivate), showed no sign of any grasses other than Bermuda. Any information along this line will be greatly appreciated. Please answer through your columns. W. H. Calhoun, Jr.

Ashe county, N. C.

1. Kentucky Blue grass is indigenous to a limestone soil, and is never a permanent success in land of any other character. It may grow, but will not endure. The eastern or peninsula section of Virginia is not a limestone section, and this grass therefore would not be likely to make a permanent pasture mixed with Bermuda.

2. The Bermuda would run out the Blue grass.

3. We think a mixture of orchard grass, Virginia blue grass, meadow fescue, red top, and tall meadow oat grass, in equal parts, would be likely to make the most reliable permanent pasture in the section you name.

4. The Blue grass complained of is no doubt Virginia Blue grass (*Poa compressa*).—Ed.

THE UNITED STATES COTTON EXHIBIT AT THE PARIS EXPOSITION.

The "grand prize" for cotton and other fibres has been awarded to the United States Department of Agriculture for its exhibit at the Paris Exposition, thus affording official confirmation of the general verdict which pronounced it a truly magnificent exhibit. While the award has no pecuniary value, it is especially gratifying to the statistician, who, as cotton expert to the U. S. Commission, supervised the preparation of the exhibit, as affording him an opportunity to offer his congratulations to the numerous correspondents of the Department who contributed to it upon this gratifying recognition of their efforts by the Exposition authorities. He gladly takes this occasion to thank them for their cordial co-operation in making a creditable exhibit. It is probable that each individual contributor to the exhibit will be given a certificate, stating that his exhibit formed a part of the general exhibit, which means practically the same award to each producer that the exhibit received as a whole.

Farmers, lend your paper to your neighbors, and ask them to read it and see if they can afford to be without it. A Subscriber.

Gather up the manure and mulch your land with it. Every one knows how much richer the ground is where all old board has lain to keep in the moisture. B.

When corresponding with advertisers mention the *Southern Planter*.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

Complete the harvesting and storing or shipping of all summer-grown crops. As the land is cleared plow deep and seed with vetches and rye to make a cover and provide matter to turn down in the spring.

Clean up all trash and weeds and burn or compost in fresh-made horse manure, which will heat and destroy the vitality of the seeds. If fungoid diseases have been prevalent, it is better to burn all trash and thus destroy the spores.

Irish potatoes may be planted in this month and December south of the James River to the Gulf, if proper care is taken in doing the work. These plantings will give a crop several weeks earlier in the spring than spring-planted sets. Colonel Cook, of Warren county, N. Y., thus describes his method of planting this crop, and he has been most successful:

"For years I have abandoned the planting of Irish potatoes in the spring, on account of unfavorable weather and poor seasons, but have planted in the fall, from the middle of November to the last of December, as I could catch the land in proper condition, and I am greatly pleased with the result, making a full crop of early potatoes always. I plant them very deep; that is, I run off the row with a single plow, then I bar off the row twice and run the furrows in the middle as deep as I can get it, thus making quite a deep trench. Then I sow my fertilizers about 500 lbs. per acre, and then plant the potatoes. Then I fill the trench with stable manure and cover with the soil as deep, or rather as high, as the plow can make it. When the potatoes come up in the spring, or just before they come up, I scrape off the crust with a hoe, so as to let the potatoes come through easily."

Sets may be had from Southern seedsmen advertising in our columns.

Cabbages may be set out during this month, and will, if they get good roothold before cold weather sets in, make a much earlier crop than those planted in January and February. Set out on the south side of a light ridge, so that the plants may be protected somewhat.

Lettuce plants may be set out in cold frames for winter cutting. Keep the sash off as long as the weather is mild, covering only at night. When constantly covered, give air freely on mild days.

Asparagus beds should have the tops and trash cleaned off and be harrowed down and covered deeply with barn-yard manure.

Pruning raspberry and blackberry bushes and grape vines may be done at any time now. Cut out all old canes and shorten back the new wood in raspberries and blackberries.

New orchards may be planted from this time on to spring whenever the weather and land is in suitable condition. We are strongly in favor of fall planting. Prepare the land well by deep plowing, and have the subsoil in the bottom of the holes where the trees are to be planted broken with the pick. Use no manure or fertilizer in the holes. A mulch of barn-yard manure may be spread on the top of the ground around the trees after they are planted. In this issue will be found a table of the best varieties to plant in this State.

MEETING OF THE VIRGINIA STATE HORTICULTURAL SOCIETY.

Editor Southern Planter:

The annual meeting of the Virginia State Horticultural Society will be held on Tuesday, November 20th, and following day, in the Assembly Hall, Roanoke. For the information of our members, and horticulturists generally, will you kindly make public in your columns that the C. & O., Southern, and N. & W. have promised a special rate of about one and one-third fare for the round trip. Tickets will be on sale 19th, good to return to 24th. The two latter roads will grant round trip tickets at any of their offices on application, and the C. & O. by means of a card, which can be obtained by application to me. In the case of the two former railroads, the ticket will be given to the connecting point with the other road en route to Roanoke, where another ticket must be taken. The hotels have also promised special rates. The meeting will be addressed by some of the most prominent horticulturists of the United States, and discussions on topics of interest will also be a feature. Intending visitors are invited to bring with them specimens of fruit for the exhibit to be had in the hall at the time. Admission is free to all, and any one interested in horticulture is cordially invited to attend.

WALTER WHATELY,
Secretary and Treasurer,
Virginia State Horticultural Society.

Crozet, Va.

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

FRUIT LIST FOR VIRGINIA.*

We take the following list from a Bulletin prepared by Prof. W. B. Alwood, of the State Experiment Station.

Prof. Alwood says: "The varieties of fruits best adapted to the soils of Virginia is next in importance to a study of the soils if not equal thereto. To actually make a critical study of this subject is beyond the possibilities of any one man or dozen men, but personal observation, supplemented by a concensus of the best experience gathered from the State at large, ought to furnish data of importance. It is in this manner we have prepared the list submitted. The writer has constantly observed the varieties grown in the State, noting the important points brought to light by his own observation and the observation of others. He has also received the direct aid of Messrs. J. B. Watkins, H. E. Van Deman, Chas. L. Wayland, J. H. Lupton, M. E. Fulcher, Geo. E. Murrell, J. G. Wertz and J. W. Porter, in compiling this list. These gentlemen filled out provisional lists, which were compared, and the final list drawn up as it here appears. In this list are included only such fruits as are thought to be the standard old varieties, and a few of the most promising newer sorts.

"There can be no greater mistake made than to plant an ill assorted lot of varieties of fruit. A few well-selected kinds is the first essential to success in commercial fruit culture."

* This list was first prepared for the Virginia State Horticultural Society by a committee of which Prof. W. B. Alwood ischairman, and is here reprinted in revised form.

APPLES.

NAME.	Color.	Quality.	Season.	Use.	Tidewater.	Middle Virginia.	Piedmont.	Valley.	Appalachia.	REMARKS.
SUMMER.										
Early Harvest	Y. W.	8	V. E.	K. M. D.	*	**	*	*	*	Not equal to next on list.
Early Ripe	Y.	9	E.	K. M. D	**	*	*	**	**	One of the best for culinary use.
Red Astrachan	R.	5-6	E.	K. M.	*	...	**	*	*	Ripens unevenly.
Summer Pearmain	R. Ru.	10	M. E.	K. D.	...	**	**	*	...	
Yellow Transparent	Y.	7	E.	K. M.	*	*	*	**	**	
AUTUMN.										
Buckingham	R. Str.	9	L.	K. M. D.	*	*	**	**	**	Excellent for culinary purposes.
Fall Pippin	Y.	10	M.	K. D.	...	...	*	**	**	Excellent culinary and dessert.
Grimes (*Golden*)	Y.	10	L.	M. D.	**	**	...	...	...	Mostly a dessert apple.
Malden Blush	Y. R.	7-9	E.	K. M. D.	*	*	**	**	**	Late autumn in lower Va. One of the best for family and market.
Mangum (*Fall Cheese*)	Y. R. Str.	7-8	M.	K. M. D.	...	**	*	*	*	An excellent apple.
Smokehouse	Y. R.	8-10	M. L.	K. M. D.	*	*	**	**	**	Fine dessert and cooking apple.
WINTER.										
Ben Davis	Y. R. Str.	4	L.	K. M.	*	*	*	**	**	Early bearer. Ships well.
Grimes (*Golden*)	Y.	10	E.	M. D.	...	...	**	**	**	Mostly a dessert apple.
Stayman Winesap	R.	8	L.	M. D.	...	...	†	†	†	Early winter, mountain districts. Commercially unknown in East.
Winesap	R.	9	L.	K. M. D.	**	**	**	*	*	Best red variety where soil suits.
Yellow Newtown (*Alb. Pippin*)	Y.	10	V. L.	K. M. D.	...	...	**	*	†	Should be limited to special soils.
York Imperial (*J. F. Winter*)	Y. R. Str.	7	L.	K. M. D.	**	■	**	**	**	A standard shipping variety.

PEACHES.

NAME.	Color.	Quality.	Adhesion.	Color of Flesh.	Season.	Use.	Tidewater.	Middle Virginia.	Piedmont.	Valley.	Appalachia.	REMARKS.
VERY EARLY.												
Alexander	W.R.	5-6	S. C.	C. W.	V. E.	M. D.	...	*	**	*	*	
Amsden	.....	.....	S. C.	W.	V. E.	D.	*	...	*	*	*	
Sneed	G.W.	6-7	C.	W.	V. E.	M.	...	...	*	*	*	
EARLY.												
Bishop (*Early*)	.....	.....	F.	W.	E.	M. D.	...	**	**	*	*	Good commercial peach.
Early Crawford	Y. R.	9-10	F.	Y.	E.	M. D.	**	*	**	**	**	One of the best in quality.
Lee (*General*)	G.	8	C.	G.W.	E.	M.	...	**	*	**	**	
Mountain Rose	W. R.	7-8	F.	W.	E.	M. D.	**	*	**	**	*	
St. John (*Yellow*)	Y. R.	5-6	F.	Y.	E.	M. D.	...	...	**	**	...	
MEDIUM.												
Chinese (*Cling*)	Y. C.	7-8	C.	R.W.	M.	K. M.	...	*	*	**	*	
Elberta	Y. R.	7-8	F.	Y.	M.	K. M.	**	**	**	**	*	Good commercial peach.
Late Crawford	Y. R.	10	F.	Y.	M.	K. M. D.	...	**	*	**	**	Fine quality.
Oldmixon Cling	C.	10	C.	W.	M.	K. M.	...	*	*	**	*	Standard sort.
Oldmixon Free	C.	8-9	F.	W.	M.	M. D.	**	*	**	*	**	Standard sort.
Stump	Y. R.	5-6	F.	W.	M.to L	K. M.	...	*	**	**	**	Standard sort.
LATE.												
Bilyeu (*Comet*)	G.W.	7	F.	W.	L.	K. M.	...	...	**	**	*	One of best late market.
Heath (*Cling*)	W.R.	10	C.	W.	L.	K. M.	...	*	*	*	*	
Salway	Y. R.	5-6	F.	Y.	L.	M.	**	...	**	*	...	
Smock	Y. R.	5-6	F.	Y.	L.	K. M.	...	**	*	*	*	
VERY LATE.												
Albright (*Winter*)	.....	.....	C.	W.	V. L.	K. M.	...	*	**	**	*	
Levy (*Late*)	.....	.....	C.	Y.	V. L.	M.	...	*	*	†	†	
Starke	.....	.....	F.	Y.	V. L.	K. M. D.	...	*	*	†	...	

PEARS.

NAME.	Color.	Quality.	Season.	Use.	Standard or Dwarf.	Tidewater.	Middle Virginia.	Piedmont.	Valley.	Appalachia.	REMARKS.
SUMMER.											
Bartlett	Y. Ru.	8-9	L. S.	K. M. D.	S.	**	**	**	**	**	Old standard.
Clapp	Y. C.	6-7	L. S.	M. D.	S.	*	*	*	**	*	Rots at core.
Elizabeth (*Manning's*)	Y. R.	6-7	S.	D.	D.	**	...	...	**	**	Abundant bearer.
Summer Doyenne	Y. Ru.	4-5	E. S.	D.	S.	...	*	*	**	*	Best of very earlies.
Tyson	Y. Ru.	8-9	S.	M. D.	S.	**	*	**	**	**	Finest in quality.
AUTUMN.											
Angouleme (*Duchess*)	Y. Ru.	5-6	A.	M.	D. & S.	**	*	*	**	**	Good cropper.
Bosc	Y. Ru.	10	A.	M. D.	S.	...	...	**	**	**	Poor grower—splendid quality.
Kieffer	Y. C.	4-5	L. A.	K. M.	S.	**	**	**	**	**	Heavy bearer—quality medium.
Seckel	Br. Ru.	10	A.	K. M. D.	D. & S.	**	**	**	**	**	Good quality, family use.
Sheldon	Br. Ru.	7-8	A.	M. D.	D. & S.	**	...	...	**	**	Good size and fair quality
WINTER.											
Easter (*Beurre*)	Br. Ru.	5-6	W.	M.	S.	...	...	...	...	...	An inferior fruit in this region.
Lawrence	Y. Ru.	7-8	W.	M. D.	D. & S.	**	...	...	**	**	Early winter, excellent quality.

PLUMS.

NAME.	Color.	Quality.	Adhesion.	Season.	Use.	Tidewater.	Middle Virginia.	Piedmont.	Valley.	Appalachia.	REMARKS.
*JAPANESE GROUP. (*Prunus triflora*)											
Abundance	P. R.	6-7	C.	E.	M. D.	**	**	**	**	**	Good bearer, but not hardy.
Burbank	P. Y.	4-5	C.	M. L.	M.	*	*	**	**	...	
Ogon	Y.	6-7	F.	E.	K. M. D.	...	**	**	**	**	Good bearer; more hardy than Abundance.
Red June	R.	4-5	S. C.	V. E.	M.	...	...	**	*	*	
Wickson	C.	5-6	C.	M.	M.	**	...	**	...	...	
†EUROPEAN GROUP. (*Prunus domestica*)											
Bavay (*Green Gage*)	G. Y.	10	C.	M.	K. M. D.	...	*	*	*	*	A splendid plum.
Bradshaw	P.	4-6	F.	E.	K. M.	...	...	*	**	*	Good for canning.
Geuli	Bl.	4-6	C.	E.	K. M.	...	...	*	*	*	Good for canning.
Lombard	P. R.	4-5	C.	M.	K. M.	...	...	*	*	*	Great bearer—rots badly.
Shropshire (*Damson*)	Bl.	4-5	C.	L.	K. M.	...	...	*	**	**	The best damson.
Yellow Egg	Y.	10	C.	M.	K. M. D.	*	*	*	*	**	Splendid plum.
NATIVE GROUP. (*Prunus sp.*)											
Wild Goose	P. R.	4-5	C.	E.	K. M. D.	*	*	**	*	*	

* Japanese plums do not rot quite so badly as the best European plums here.
† Most European plums rot badly here.

Very few persons have grown our native plums to such an extent in Virginia as to warrant recommendations. We have a large list at the Station, but not fully tested.

EXPLANATION OF SIGNS AND LETTERS USED.

The star (*) is used to commend a variety; when it is desired to highly recommend a variety a double star (**) is used in the column under appropriate sections of the State, or in several or in all sections as may be thought proper. A single star commends a variety less highly, and the dagger (†) indicates that a variety is thought promising or should be tested.

COLOR is indicated by various letters; as A for amber; B, black; Bl, blue; Br, brown; C, crimson; D, dark; G, green; L, light; P, purple; R, red: Ru, russet; Sc, scarlet; Str, striped; W, white; Y, yellow. Combinations of these letters indicate shades of colors.

QUALITY is indicated on a scale of 0-10. The figures set in this column indicate our judgment on this point, 10 being the highest standard.

SEASON is indicated, first by separating the varieties into groups as near as was practicable, then in each group E is used for early; VE, very early; M, medium; L, late, and other combinations which will be readily understood.

USE is indicated by K for kitchen, meaning all culinary uses; M, market, and D, dessert. Under grapes, W, for wine.

FALL WORK IN THE ORCHARD.

Editor Southern Planter:

One of the pioneer nurserymen in our State often said, "There are only fifty two days in the year that are not seasonable for pruning fruit trees, and these fifty two days are the Sundays." If his doctrine was correct—and he was a very successful horticulturist—there is time this fall to prune some of the trees neglected or overlooked last spring. The orchards are many that contain trees bearing a number of dead branches. While we will not question that it may have been better if they had been removed last spring, this is no excuse for retaining them until next spring. Cut them off this fall—and the sooner the better. During the summer was an excellent chance to note the defective trees—those bearing inferior fruit, the worthless seedling, and others that are mere incumberers of the soil. Now is a splendid time to remove all such trees.

The advocates of fall and spring planting of fruit trees are loud in proclaiming the superiority of their respective methods, but I think careful investigation will reveal points favorable to fall planting that are not attached to spring-planted trees. Most notable among these are, that the tree planted in the fall has some months in which to adjust itself to its location and to firmly establish its roots before the call for spring growth is made. Again, it is often true that spring brings a rush of work that prevents setting the tree out at the proper time, or else in the haste the needed care is not given it.

If your trees are tall and much exposed to the wind, now is the time to drive a stake near it, to which it should be tied in such a manner as to avoid chafing. A piece of matting or cloth may be put between the tree and stake.

This is also a favorable time of the year to consider the manurial needs of the orchard, to mulch the trees, and to apply the mineral fertilizers. It was not until within recent years that the question of applying commercial fertilizers to fruit trees received much attention. But of late it has been adopted as an important factor in successful horticulture. In using fertilizers, an excess of nitrogen must be avoided. While this constituent is very essential in making tree growth, too heavy an application means an undue development of leaf and branch at the expense of the fruit. Potash is one of the most important ingredients to promote the growth of fruits. This is true, because it constitutes a large proportion of the ash of the wood and fruit, and forms the base for the well-known fruit acids. A mixture consisting of 700 lbs. of ground bone, 700 lbs. of acid phosphate, and 600 lbs. of muriate of potash, is recommended as very serviceable for fruit crops. The amount to be applied depends on the character of the soil, but the average orchard should receive 500 lbs. per acre, annually, of the above mixture. In addition to this, nitrate of soda should be applied in the spring, unless some leguminous crop is being grown in the orchard.

In applying fertilizers to an orchard, it is desirable that they be worked well into the soil, which can be done by applying to the surface before plowing. As the roots have a tendency to go to the point their food is, by distributing it throughout the lower layers of the soil, and especially in the early life of the tree, the feeding roots are kept from the surface, therefore less liable to suffer from drouth. If the orchard cannot be cultivated, or, if a sod is preferred, soluble fertilizers may be used as a top dressing, as they descend rapidly.

For fruit trees, the soil should be dry, either naturally or made so through drainage, as they will not live on a soil constantly saturated with stagnant moisture. The roots of the apple and pear run deep, and hence they need not be expected to flourish unless the subsoil is dry and porous enough to admit of the percolation of water. Therefore, let part of your fall work in the orchard be to see that it is properly drained

If rabbits bother your trees, a wash of soft soap or whitewash, to which are added sulphur and carbolic acid to make it offensive, and glue to make it stick, applied in November, will assist in keeping off these pests.

Trees procured in the fall and desired for spring planting, should be laid in trenches in a slanting position to avoid the wind; the situation should also be sheltered and the soil dry. A mulching of the roots and a few evergreen boughs over the tops, will afford good protection. BRYAN TYSON.

Moore Co., N. C.

APPLES ROTTING.

Advices from Prince Edward county, Va., are that winter apples are rotting badly on the trees, and almost all the fruit has fallen to the ground. The prospects are that in a month or more scarcely an apple will be left sound in the county. The long drouth and then the abundance of rain that followed, together with unfavorable conditions of temperature, seemed to be disastrous to the fruit. Late peaches were affected in the same way.

Prince Edward Co., Va. T. J. GARDEN.

When corresponding with advertisers mention the *Southern Planter.*

Live Stock and Dairy.

HOGS AND HOG FEEDING IN THE SOUTH.

We have a communication from a correspondent in which he asks us to advise on the breed of hogs, and the method of raising and feeding the same so as to make them a profitable item in the farm economy of the South. He says that Western farmers, with whom he has talked, do not see how we in the South can profitably raise and feed hogs, seeing that corn is worth here, on the market, from two to three times as much as in the West. We gladly comply with the request of our friend, as we hold very strongly (and have frequently so stated our views) that hog raising and feeding ought to be one of the great industries of Southern farmers. It is a monstrous disgrace to us that probably three-fourths of the hog meat consumed in the South is raised and fed in the West. Our smoke house ought to be at home, and not in Chicago. There is no reason, whatever, why Southern farmers should not make all the hog meat consumed in the South, and make it profitably. The points necessary to be considered in entering upon the business are, first, the breed, and next the method of feeding. In hogs, as in cattle and sheep, no one breed has a monopoly of all the good points. There are good hogs of all breeds except the "razor-back," and there is nothing good about him. The fault of the breeds of hogs commonly raised and fed in the South, is that, as a rule, they trace back too soon to the "razor back," and have much too great a tendency to revert to the original type. This is the cause why so few of the hogs fed here are profitably fed. They put the food they eat into a bad skin, and then race off what little progress they make nearly as fast as it is made. Numerous experiments, made at the various experiment stations, go to prove that there is more in the type of the hog than in the breed. A good type of any of the various breeds will make good meat profitably. What is wanted to meet the requirements of the market today is a rangy, deep hog which will make meat rather than lard. The lard hog is not in demand in the East and North, and even if he was he can be more profitably produced on the illimitable cornfields of the West. Here we can make the bacon hog cheaper than the Western man can do because here we have, or can have, the special food required to make that type rather than the lard type. Bearing in mind the qualification as to selection of a deep rangy type of hog, we would personally make that selection from the Berkshire or the Essex breeds. We have, however, friends who would prefer to make the selection from the Poland Chinas. Whatever breed the selection is made from we would strongly advise that the selected hog be a black one. A black hog, like a black man, is by nature more fitted to withstand the heat and scorching rays of the sun. When the selection has been made the next point is the feed. A hog, to be profitable in the South and to make the meat the market calls for, must be a grazing animal rather than a corn eating animal until within a month or so of the time of slaughter. The providing of proper grazing is a question which has received too little attention from Southern farmers. To merely turn the young hogs into a common pasture field or a wood lot is not sufficient, even though there be an abundance of food. The feed so provided is not of the quality demanded in order to make meat quickly and profitably. Special pastures of crimson clover, red clover, Sand vetch, peanuts, soja beans, artichokes, rape and sweet potatoes should be provided. All these crops, except the sweet potato, are rich in protein, which is the element needed to make flesh, muscle and bone, whilst at the same time all the named crops are well balanced with carbohydrates and fat. Feeding on these crops, which are easily raised in the South, and which in the raising improve the land on which they are grown and which the hogs will harvest for themselves, growth will be made quickly, health will be maintained, and meat will be produced at a cost much less than if made on corn. As shewing what some of these crops will do in the way of meat making, in an experiment made in Arkansas the pigs experimented with gathered the peanuts, soy beans and chufas on one third of an acre, and those fed on corn consumed 23 bushels. The pigs fed on peanuts gained 2 lbs. and over each per day. Those fed on soja beans (four pigs) gained nearly 100 lbs. in 32 days, and those fed on corn gained a little over 2 lbs. per day each. The estimated quantity of pork produced per quarter acre of peanuts was 313 lbs. and of corn 109 lbs. In an experiment made at the South Carolina Station it required 6 lbs. and a fraction of corn to produce 1 lb. of pork; it required 4½ lbs. of peanuts to produce 1 lb. of pork; it required 32½ lbs. of sweet potatoes to produce 1 lb. of pork, and it required nearly 5 lbs. of cow-peas to produce 1 lb. of pork. Mr. Bellwood, of Chesterfield county, Va., reported to us that in the fall of 1899 he had sows to farrow. When the pigs were big enough to wean they were fed some corn, with all the pumpkins they could eat. About the first January they were turned on artichokes and kept there until a couple of weeks before the crimson clover came in bloom, when they were given access to it. On May 16th, one two horse wagon load of these pigs was sent to Richmond. The

check received called for $101.17. These pigs hardly saw enough corn during the last four months of their life to know what it was. At the Alabama Station, 487 lbs. of corn made a gain of 100 lbs. of weight in a lot of hogs, as against 481 lbs. of cow-peas and 433 lbs. of half corn and half cow-peas.

"A 2,000 LB. BABY BEEF AT 24 MONTHS OF AGE AND A 400 LB. PIG AT 8 MONTHS."

Editor Southern Planter:

I prefer to use the above as a heading for my second paper on the 'Dollars and Cents and the Common Sense View" of the new combination of farm feeds and methods of feeding.

An old adage, "that a proposition well stated is more than half proven," makes me careful to correctly lay down my position. The basic law of any type of architecture, civil engineering, mechanical, no matter what, is that the power, force, or strength must be in excess of the service to be rendered. The superstructure must be so proportioned that it will be able to sustain—times, if need be—the average weight or load expected of it.

Everything built by what we call nature, when let alone, is a perfect type of architectural perfection. Any well proportioned structure must first have a good foundation. In animal building we call that the breed.

Natural forces never make mistakes. The razor-back hog could outrun a race horse without danger of "breaking down." But the "razor-back," by mind influences which we will describe later on, and evolution of least to greater, is the Poland-China, the Berkshire and Duroc of to-day. The original had a light body upon a powerful bone structure; the latter has a monstrous body upon very light and comparatively weak bone formation.

The cedar-head "pennyroyal" bull could fight all afternoon, or jump a ten rail fence. To day he is the Hereford, Polled Angus, or Shorthorn. A triumph of evolution in external form, but when of large size or very fat is of slow motion and stupid from want of a frame to carry the weight of the body; and, when in motion, has a stumbling gait and moves with the utmost caution.

Nature never has attempted to put a 1,500 lb. body upon a 1,000 lb. set of legs. Rather she proportionately puts a 1,000 lb. body upon a 1,500 lb. set of legs. It is only found where man, using mind forces to aid him, has destroyed the equilibrium, that we find the abnormal animal development.

This paper is the outgrowth of observations made while taking in the big fairs this fall. When the animals (especially cattle and hogs) were very large and fat, they moved as though their weight was burdensome; seemed reluctant to get up or stand up. Where there is a wrong there is a why for it.

With a hope that they may be useful and set men to thinking, I offer a few revelations of the newer scientific facts, moral and physical philosophy, involved in the changes from the "razor-back" and the "pennyroyal" to the present types of animals of perfect form or external beauty. The brain in animal or man is a monitor, the watch tower, and is in perfect touch with every cell or molecule of matter that has in either the quality we call life. No bone cell or tissue cell or blood cell that is a recipient of life is ever separate, or that is not in touch with its proper part of the brain. No part can be imposed upon or injured without a danger signal is raised in the brain. A writer who has described pain as the "death of the cell," hits it exactly.

The reluctance to move, shambling, careful gait says as plain as words can express it: "Master, I am overloaded. The legs under me and the frame work of my body are too weak. I feel insecure. Don't hurry me." The failure to heed the warning is answered in the many hogs that break down, and occasionally a broken legged baby beef is reported.

To state the facts is to suggest the remedy. We could make this monstrous calf or pig to-day if we had the bone structure to build it upon, and with much less food than we use to-day in growing a 1,500 lb. animal.

Our breeding has been too much for show points, beauty of form. Too little attention to the quality of the bones. We have ignored the laws of mechanics. Our framework is inadequate for the service required.

The fault is with the breeder, feeder, feed and methods of feeding. The common saying that "nothing is stronger than its weakest part" is particularly true of feeds. Let us kill two birds with one stone. Show how we can make the new beef on much less feed, and show how to know the weak points in our feed. The sucking calf seems unconscious of danger at violent play. Why? Because the milk diet has in it every element to make a strong, elastic bone and promote the firm muscular attachment the calf proves in its recklessness to be true. So long as it has milk, no matter how big, this is true. Now, if the elements represented in the milk that furnishes the bone and muscular development were kept up at and after weaning time, the frame would grow in advance of the rest of the body. But the feeder may be pouring into the animal's digestive organs feed stuff sufficient to make a growth of four pounds a day, if it was a balanced ration, but it lacks in the bone-making element. Nature uses every particle of that, but out of it can only build a frame that can safely carry a daily gain of two

pounds, and 50 per cent. of what that man feeds passes into animal sewerage and the manure pile, instead of the milk pail or meat tub.

Again, a statement of the case suggests the remedy. I had intended in this article to tell what to grow, how to mix it, prepare and feed it, that the farmer could feed (approximately) a balanced ration, but these thoughts seem to press for expression.

Some of the rewards for this effort: This "new beef" will bring 8 to 10 cents, where the old corky, leathery stuff brings 4 and 5 cents. This new feeder will balance his ration, keep the power in excess of the strain required, take all the nutrition out of the feed, and grow rich.

We have no conception of the possibilities of the manger or feed trough. We cite Cook with his 528 lb. pigs, eleven months old, at the World's Fair in 1893. I hope that it will be recorded that an American grew the first 2,000 lb. baby beef at 24 months of age.

Fault has been found that I had seeds to sell and my writings were to advertise them. "If eating meat offends my brother, henceforth I will eat no meat." I will have no seed to sell. I will feed what I raise and keep the fertilizing quality of what I raise at home to enrich my own fields.

This journal and others of its class are missionaries, going into homes and in the family circle, sowing the seeds of optimistic philosophy, the law of sunshine; the crop will be our fields, and will be dotted with growing animals. The sunshine kills the moulds and fungus of pessimistic conditions. New hope will brood in the heart of the farmer, and "the good time coming" will come to stay.

Olney, Ill. ROBT. C. MORRIS.

PRACTICAL SHEPHERDING.

The Nature of the Soil Affects the Herbage—Limestone Land Favorable for Sheep—Why the Improved Breeds are More Profitable—The Best Fattening Foods—Sheep Must Have Enough to Eat.

Editor Southern Planter:

Animals for breeding purposes should not be kept fat. Sheep for raising lambs and wool should be kept in reasonably good flesh—neither too fat nor too lean. Fatness is an incumbrance, and a disease. An obese man cannot endure heat and fatigue so well as a lean man, and would not be accepted as a soldier by the recruiting officer. Fatness is not a disease that renders the flesh of an animal unfit for food; on the contrary, it makes it more wholesome and palatable. Sheep are not likely to become too fat for raising good lambs when kept on pasture and roots, but should be sparingly fed with grain until it is desirable to prepare them for the butcher.

The nature of the soil affects in a measure the composition of the herbage grown upon it. Every person has observed that cattle will not eat the rank grass which grows around their last year's droppings in the pasture fields. The proportion of lime and potash in clover varies according to the proportion of these substances in the soil. A soil containing a large proportion of potash is said to produce grass that is injurious to the health of sheep. An excess of potash in the soil is believed to be disastrous to all grass eating domestic animals, and producing in sheep a disease known as "blind staggers."

I do not think there is an excess of potash in the soils of the South. I know that on our land in Pennsylvania there is a deficiency, and wood ashes is the best fertilizer we can use.

Unlike potash, lime, when abundant in the soil, aids in producing the sweetest and most healthful pasturage for sheep. On the limestone lands of Vermont, New York, Pennsylvania, and Ohio, the finest and hardiest flocks of sheep are to be found. It is the same in the limestone districts of Great Britain. Wool contains a large proportion of sulphur, and this, perhaps, is the reason why such food as turnips, cabbage, rape, alfalfa, and clover are so eagerly sought after by sheep, and have been found so valuable in sheep raising.

It is known that when sheep are allowed to become emaciated, or poor in flesh, the wool makes but little growth, and that little is weak, and will break when being manufactured into cloth. The wool buyer can detect this damaged wool in a moment, and will not pay the highest price for it. It is, therefore, important for the sheep-raiser to keep his sheep in good, even flesh all the time, and when the pastures get short have some soiling crop like rape, or alfalfa, to carry them through the droughty period. Sheep will eat the leaves from corn fodder, but will not devour the whole stalk like cattle.

Cicero, the great Roman orator, who lived two thousand years ago, was interested in farming, and an extensive raiser of fine wool sheep. He said: "The feeding of cattle is the most important part of agriculture." He was well aware that the keeping of cattle and sheep was imperatively necessary to the maintenance of the fertility of the farm and the production of profitable crops of grain and grass—that the cattle fed the farm, and the farm fed the cattle and their owner.

To shelter sheep during storms and severely cold weather is important to their growth and well being, but the greatest improvement in sheep, as well as in all

other kinds of farm stock, has been made by the bestowal of an abundance of the proper feed. The history of all the improved breeds of domestic animals proves this. A glance at the diminutive horses and cattle of the Shetland Islands and Iceland, dwarfed by the Arctic weather and scanty herbage, proves it. Full grown sheep driven from the hills of Pennsylvania to rich pastures in New Jersey have not only fattened but increased in length, breadth, stature, and weight.

The improved breeds of sheep have attained the ability of putting on more flesh and making a faster growth from the same amount of food consumed by the unimproved. Their organs of digestion and assimilation have been enlarged and strengthened so that they can and do extract more of the nutriment from their food than the others, and, consequently, less goes to waste, and more profit is made by their keeping. Unimproved sheep, like Pharaoh's lean kine, can devour everything in their way, and "still be as ill favored as at the beginning."

Having obtained some fine sheep for the foundation of his flock, the shepherd must not think his work is done, and that he can lie in bed and take his ease in the morning. The same painstaking that brought the sheep to their high state of excellence must be continued in order to keep the flock up to the present standard. There must be a constant effort for improvement or the progeny will degenerate.

It requires a certain amount of food to sustain the animal's life, or the food of maintenance. As we have said, some animals of the same species, age, sex, and size require more than others. To fatten an animal, or even to make it grow, there must be more food consumed than merely to support the vital organism. To fatten an animal, richer food than grass and roots are required. According to the chemist's tables oats contain more fat than corn—the proportions being 6 for oats to 5½ for corn; oats also contain more protein—the proportions being 12 for oats to 10½ for corn. In carbo-hydrates another valuable constituent in food, corn is richer than oats as 62 to 55. Chemically considered, linseed stands at the head of all fat-forming feeds, and sunflower seeds next. Peas, wheat bran, and barley stand high. Acorns, chestnuts, and beans contain more fat than wheat. The cow pea, when ripe, contains nearly as much fat-forming substances as the common pea, and is one of the best green pasture plants to be found in the South; made into hay, cow pea vines are eaten greedily by sheep in the winter.

In parts of the South, where dogs are not too plentiful, nuts and acorns would make the woods a good range for sheep. Henry Stewart says: "The products of forest land are especially valuable, for the leaves, as well as for the young twigs, which are greedily eaten by sheep, and form naturally the bulk of the food in wooded localities. The very common sassafras is especially palatable to sheep, who will browse down quite large shrubs of it to the roots." The dryer climate of the South in winter is more favorable for raising sheep than in Great Britain, where sheep are considered the most profitable stock a farmer can raise.

J. W. INGHAM.

RICE MEAL AS A FEED FOR HOGS.

Rice meal is used quite extensively in the lower part of the State of South Carolina as stock food, and as no data could be found as to its feeding value, it was thought best to make a test of it.

The results of feeding rice meal with milk to pigs are given in Bulletin No. 55, of which the following is a summary.

When fed with skim milk, rice meal has a feeding value equal to that of corn meal.

Pigs, six months old, made an average gain of 1.72 lbs. per day for 61 days, when fed on rice meal and skim milk at the ratio of 1 lb. of meal to 4 lbs. of milk. The lot fed on corn meal and skim milk, at the same ratio, made an average gain of 1.66 lbs. per day for 61 days.

It took 2.48 lbs. of rice meal and 9.91 lbs. of skim milk to make 1 lb. of gain.

It took 2.57 lbs. of corn meal and 10.26 lbs. of skim milk to make 1 lb. of gain.

One pound of gain cost 3.84 cents when rice meal was fed, and 4.63 cents when corn meal was fed, the price of corn meal being $20.00 per ton and rice meal $15.00 per ton.

Clemson College, S. C. C. M. CONNER,
Asst. Agl.

THE CATTLE QUARANTINE.

The following notice has just been issued:

BLACKSBURG, VA., Oct. 8, 1900.

At the annual meeting of the Interstate Association of Live Stock Sanitary Boards, held in Louisville October 2nd and 3rd, 1900, it was recommended to the United States Department of Agriculture that the cattle quarantine be suspended for November and December.

In accordance with the above recommendation, notice is hereby given that the cattle quarantine in Virginia is released within the above specified months.

All parties desiring to move cattle across the quarantine line should do so within the months stated above, as no permits can be granted after January 1, 1901.

J. M. MCBRYDE,
Secretary of the Board.

The Poultry Yard.



IVANHOE POULTRY YARDS, HENRICO CO., VA.

The above is an exact picture of the new house which has just been built at the Ivanhoe Poultry Yards, in Henrico county, near the city of Richmond, which has one of the finest flocks of high class Barred Plymouth Rocks in the South. The Ivanhoe Poultry Yards make a specialty of that breed alone. The house is sixty-four feet long by 16 feet wide, and has twelve windows facing the South, and will be used solely for Barred Plymouth Rocks. The house will accommodate about 200 breeders the coming season. Any one interested in poultry visiting the city of Richmond will be amply repaid for the trouble by a visit to the yards, on the Cary Street Road, where they will be cordially welcomed by the proprietor and his wife, and shown through the yards.

THE POULTRY CROP OF 1900.

This year's crop of poultry indicates, from all the reports received, a smaller supply of ducks and geese, about an average supply—possibly a little smaller—of chickens, and a larger supply of turkeys than the crop of 1899. Weather conditions have a great deal to do with the production of poultry, and as the spring was very wet in some sections and dry in others, the crop was somewhat irregular according to the different conditions. Not alone did dry and wet weather affect poultry raising, but the extreme hot weather throughout some parts of the country was an important factor, as the reports indicate that the eggs were much affected and the fertility impaired, so that the hatching of young stock was below that of other years, but the quantity of eggs put out to hatch exceeded that in former years in the case of turkeys and chickens which made up for the loss, otherwise there would have been a much larger quantity raised. Of ducks and geese, the supply is smaller. In the Southern States—Tennessee and Kentucky—the crop is far below an average, estimated fully 30 per cent. less, and this was due to the partial failure of the grain crops in 1899, and high prices locally for feed.—*Sprague Commercial Co.*

AN EXCELLENT BREED

The great popularity attained by the silver laced Wyandottes, says the *American Agriculturist*, in so short a time, is without parallel, and few breeds are more highly esteemed in America to day. They have attained public favour entirely on their merits. They are not the coming fowl, but the fowl that has come, and come to stay. For table qualities, they cannot be excelled. They are hardy, easily raised, mature early, and for broilers just fill the bill. As egg producers they are excelled only by the non-sitting breeds, laying large, red-coloured eggs. They have beautiful plumage, bright yellow legs and skin, low rose combs, making them specially adapted to our normal climate.

The Horse.

NOTES.

The fortieth annual fair and race meeting of the North Carolina Agricultural Society, held at Raleigh, during the week of October 22nd to 27th, was a success financially, and the exhibits were of a very high class, while the attendance was good throughout; in fact, on Thursday, which is always regarded as the big day of the fair, it reached high-water mark. President Charles McNamee, Secretary, J. E. Pogue, and Assistant Secretary and Treasurer, C. V. Denson, and other officers of the Association, are to be congratulated on the success of their efforts.

The best racing prospect, uncovered at the North Carolina State Fair and Race Meeting, was the four year old chestnut mare Eliza Ingram, by the famous pacer, John R. Gentry, 2:00½, out of Blondette, dam of Governor Holt, 2:15, by Leland. Eliza Ingram made her first start of the season at Greensboro, where she got second money in her race, took another second at Burlington the week following, and then came on to Raleigh and won two races there, trotting to a record of 2:29½ in the first, and lowering it to 2:27¼ in the second. Eliza Ingram was bred by Mr. L. Banks Holt, of the Alamance Farm, Graham, N. C., and was sold to Mr. Geo. D. Bennett, her present owner, during the early part of this season.

Mr. James Cox, of the Belgravia Farm, Mt. Jackson, Va., spent several days here recently viewing the sights around Richmond and visiting the different farms and training establishments in the vicinity. Mr. Cox owns the richly-bred horse, Kelly, 2:27, full brother to Expressive, 2:12½, by Electioneer, out of Esther, thoroughbred daughter of Express, and the bay stallion innerits much of the superb finish and elegance of form of the latter. There are some choice mares in the court of Kelly, among them being Erena, 2:19¾, dam of three in the list. Belgravia is in one of the most charming sections of the far-famed Shenandoah Valley, and its owner, who is an amateur reinsman, and an expert judge of horses, may justly be classed among the most liberal patrons of the light-harness horses Virginia has ever had within her borders.

Mr. T. O. Sandy, of the Grove farm, Burkeville, was quite successful in Farmville, where he made exhibits and captured a string of blue ribbons with horses, cattle, and poultry. Some choice specimens of the Grove herd of Holstein cattle were shown, and attracted much attention. The imported hackney stallion, The Duke, was also well-received, as were other horses owned by Mr. Sandy.

Capitalists are organizing the Union Stock Yards Company at Norfolk, and when completed it will not only be the largest affair of the kind in Virginia, but probably in the South. The plant will cover over twenty acres of land, and stock of all kinds will be handled there. When completed it is the purpose to add an immense abattoir. The McCleary & McClellan Live Stock Company, of Norfolk, and other big commission horse dealers, most of whom are interested in the new concern, will locate there.

Mr. George D. Bennett, who is quite an extensive buyer and shipper of all classes of horses, and who has sales stables in this city and at Raleigh and Goldsboro, N. C., has sold to Mr. James W. Bryant, the well-known banker, capitalist, and railroad man, of New Berne, N. C., the handsome brown stallion, Rapid, 2:22½, by Hustler Russell, out of the famous brood mare, Rapidan, dam of Lockheart, 2:08¼, and five others in the list. Rapid is a horse of fine size, and has bold, rapid action. He will be driven on the road by Mr. Bryant, and for that purpose the son of Hustler Russell should be grand, as he has the nicest of dispositions, and few horses can outstyle him in light harness.

Horses owned by Mr. L. Banks Holt, of the Alamance farm, Graham, were strongly in evidence at the North Carolina State Fair, at Raleigh, last month. Gregorian, 2:29¾, by Prince George, out of Beltina, by Mansfield, the farm's premier sire, captured the blue ribbon for the best standard bred stallion, four years old and over, while in the classes for standard-bred brood mares, both with and without foals, blue ribbons went to Blondette, the dam of Governor Holt, 2:15, and Eliza Ingram, 2:27¼, by Leland, out of Minetto, by Kentucky Prince, and Winnie D., the black daughter of Hannis and Maud L., the dam of Whitby, 2:18¼. Winnie D., was shown with a nice looking bay colt, by Gregorian, at her side. She figures as the dam of Ginter, 2:16½, Hulman, 2:20, and Mayo, 2:28¼. The Alamance herd of Shetland ponies also attracted considerable attention and were awarded several first prizes.

THE TRIUMPH OF THE HACKNEY.

The triumph of the Hackney was complete at the Paris Exposition, when Sir Walter Gilbey's Hedon Squire won the two championships of the show—namely, the grand prize for the best of all foreign light horse breeds, thoroughbreds excepted, and the championship for the best French or foreign horse. These victories mean that the Hackney, competing at perhaps the greatest horse show ever held, and judged by experts of all the horse-breeding nations, has beaten everything, and surely now that this feat has been accomplished, and apparently, judging by appearance, with complete unanimity amongst the judges, the detractors of the king of harness horses must somewhat regret the prejudice they have exhibited in doing their utmost to disparage his merits. The following are the names of the grand jury who awarded the championship prizes, and from them it will be seen that the foreign judges are included amongst the greatest continental authorities, whilst Mr. Wrench's position in the horse world here, and the fact that he is president-elect of the Hackney Horse Society, entitles his opinions to the highest possible respect: President Count Lendorff, Secretary M. de Brinon, Baron Harkanyi (Hungary), M. Laurant, and Mr. F. Wrench.—*Live Stock Journal* (*Eng.*)

Miscellaneous.

AN ICE-HOUSE ABOVE GROUND.

A subscriber asks us to give instructions for building an ice-house above ground. This we have done several times within the past few years. We, however, will again say that an ice-house on the ground-level is nothing more than a house within a house. All that is really needed in order to save ice for summer use is such a building as will permit the ice to be surrounded with from 8 to 10 inches of a non-conducting material, such as saw-dust. A frame building with this space between the outside boarding on the studs and the inside lining, and with this space packed tightly with saw-dust best meets this requirement. It is not absolutely necessary, however, that the house should have the inside lining if 10 or 12 inches of space is left around the ice as it is packed into place, and this space be filled with saw dust tightly packed as the ice is filled in. There should be good drainage provided, so that all moisture is at once carried off, but care must be taken to so trap the drain as not to admit air into the bottom of the house. This can be done by having a sharp bend in the drain-pipe which will always stand full of water, and thus exclude the air. There should be ventilation provided for in the roof so as to carry off all vapor and moisture. This is best met by having open-slatted windows in each gable. The ice must be covered with at least a foot of saw dust. The door of the house should be double, and be packed with saw-dust. As a well known writer on this subject has said, "all that is required of an ice-house is to hold saw dust around the ice, protect it from outside moisture, and let the water from the melting ice escape freely."

ADDRESS BY THE HON. H. W. FLOURNOY.

Delivered at the Farmville Agricultural and Mechanical Fair, October 10, 1900.

I don't know what induced the managers of the Farmville Agricultural and Mechanical Fair to invite me to make the opening address on this occasion. It may be that they want me to tell the farmers what I don't know about farming, or what I think I know about it. Now, I propose to tell you briefly—First, that I don't know that I know anything about it; second, what I know that I don't know about it; third, what I think I know about it; fourth, what I think some of the farmers don't know, which I think they ought to know.

Under the head of what I know I don't know about it, I will say broadly that I don't know with that sort of accuracy which is necessary to the success of every man engaged in it—what character of soil is best adapted to the production of wheat, or corn, or tobacco, or oats, or the various grasses, or vegetables, or fruits, or flowers; and if I knew that, I would not know just when to plow it, or what kind of fertilizer to use or how much to use, or when or how to apply it; and after I had plowed it and applied the fertilizer, I would not know how and when to plant it; and after I had planted it, I would not know when and how to cultivate and care for it; I would not know just when to harvest and garner it, or how; I would not know, except in a general way, the uses to which it would be put by the people who would buy it. I would not know the best market in which to sell it, or what I ought to get for it when I sold it. I don't know the best breeds of horses, mules, cattle, hogs or sheep; I don't know the best strains of chickens, ducks, turkeys, geese or any other fowl; I don't know the methods of caring for animals or poultry. If I were to continue to tell you what I don't know about this noblest, most independent, manliest of all professions—in which nothing is demanded except just reward for honest toil—I would consume much more time than is allowed to this address, and you would conclude I am trying to revive know-nothingism; whereas, in truth, my purpose is to excite your minds to the know somethingisms, which I believe are essential to your prosperity, out of which grows all prosperity.

Next, I shall undertake to tell you what I think I know about farming I think I know that it does not pay to raise a bushel of wheat at a cost of a dollar and sell it for seventy cents; or a bushel of corn at a cost of fifty cents and sell it for thirty-five or forty cents; or a pound of tobacco at a cost of ten cents and sell it at six or seven cents, and invest the proceeds in paying the expenses of producing the crop that is sold, and then begin the next year's work with a crop-lien to a commission merchant for flour, meal, corn, meat, hay, &c. That sort of farming reminds me of a little story: A teacher once asked a little boy to work the following sum: A frog is in the bottom of a well fifty feet deep; he jumps up one foot every day and falls back two feet every night. How long will it take him to get out of the well? Not seeing the joke, the boy went resolutely to work with slate and pencil. The poor little fellow struggled with the problem for several hours, when the teacher said, "Well, John, have you worked that sum?" 'No, sur," said John, "I ain't worked de sum, but I got dat frog whar he ain't very fur from the place where sinners go, and ef I keep on at it, I'll git him thar 'fore school breaks."

I think I know that it is a losing business for a farmer to buy anything which he can produce on his own farm. I think I know that the principal cost of farming is the expense of manual and animal labor, and that it does not require more of that labor to cultivate an acre of rich land than it does to cultivate an acre of poor land. If a man owns one, or two, or three, or five hundred or a thousand acres of poor land and has no means to cultivate and improve it so as to make the labor he may bestow on it profitable, he is under a plain duty and necessity of selling one half, or two-thirds, or three fourths of it, and applying the proceeds of sale to the profitable improvement of what

he retains. I think I know that the most unwise, unprofitable and *ruinous* farming ever engaged in by intelligent people was the sort of farming which was done by the great majority of our fathers in Southside Virginia before the war.

Let me present you a picture of Southside farming in ante bellum days, and ask you older men if it is not true and typical. My father owned a farm of something more than eight hundred acres in the county of Halifax. About five hundred acres of it was cleared and cultivated; two hundred and seventy five acres of that was rich, alluvial river and creek low grounds, the fertility of which no amount of bad treatment could destroy. The remainder was high land, where the dwelling house and other buildings were located. About four acres were embraced in the garden, and that garden was as rich and productive as any land in the Shenandoah Valley, or the celebrated Dutch farms of Pennsylvania; but just outside its enclosure, the land which was of the same character of soil was too poor to produce a good crop of black eye peas, even in a good season. The garden was rich and productive because it was cultivated with intelligent purpose to make and keep it so—the outlying land was poor because it was worked to exhaustion and allowed to remain so, except the twenty five or thirty acres of what was called tobacco lots. The system of those old farmers was to cut down original forest, make what is called a new ground, raise one or two crops of tobacco, follow the tobacco with wheat, follow the wheat with corn, the corn with oats, and turn it out to grow up in old field pines. From 1853 to 1861, my father cleared something over a hundred acres of new ground. Then came the war between the States which involved four years of unflinching sacrifice of blood and treasure, which ended in conquest, the destruction of home government, on the ruins of which was established military satrapy, which encouraged and supported a horde of adventurers known as carpet baggers, whose work for years was well nigh as damaging to all material prosperity as the scourge of war. The chief work of these people was to persuade the emancipated slaves into bitter antagonism towards the white people, which disorganized labor and flooded the country with hordes of ignorant, idle, uncontrolled negroes, who were taught to believe that all the lands of the South would be divided between them so that each family would have forty acres of land and a mule. So the South commenced its new life in desolated homes on wornout lands without capital, upon the ruins of a civilization which was as completely destroyed as if the hand of God had swept it from the face of the earth. But the courage which had sustained and glorified the people of the South through four years of war—which demanded and received sacrifice of blood and treasure until both were exhausted—still remained in the hearts of men and women, who, yielding nothing to despair, but cherishing that hope which is the gift of God to all Christian people, set about the restoration of their homes with cheerful hearts and dignified submission.

During the generation which has passed since the Decline and Fall of the Southern Confederacy, we have faced and undertaken to solve many difficult political and social problems—some of which remain unsolved to day, and will continue to tax the wisdom and patriotism of our people for many years to come. I am not a preacher, my friends, and if I am a Christian at all, I know I am a very poor one; but let me tell you, it is the wickedness of man that curses the land with barrenness, and if we are to restore our lost prosperity and have fertile lands and happy homes, abounding in plenty and smiling with peace, we must live and work and toil in love and fear of the living God.

Now, let me present you a picture of a Southern farm since the war. A young soldier of the army of Northern Virginia surrendered at Appomattox Courthouse and returned homeless and penniless to his people in Georgia. He purchased twenty five acres of land at two dollars an acre on a credit, and had to mortgage his labor to obtain means with which to work it. In course of time he married and had a family of children. At the Omaha Exposition, in 1898, he won premiums for the best milch cows and butter, the best sheep, the best hogs, the best vegetables and fruits; he was at that time worth more than one hundred thousand dollars, which was the increment of that twenty-five acres of land. His home and farm are described as complete and beautiful in every appointment. He had never owned any land except that twenty five acres, and said he would not take another acre more as a gift if he were required to cultivate it. You say that reads like a fairy tale, and ask how it was possible to produce such results. The answer is to be found in the statement that he recognized farming as a profession and a science, involving careful study, accurate knowledge and painstaking, unremitting labor and enterprise. He recognized the fact that working virgin soil to exhaustion and turning it out to grow up in old field pines not only meant poverty of the land, but poverty of the people who worked and treated it that way. He recognized the fact that every year of labor bestowed on land should leave it in a better condition than it was in the year before, and applied the utmost energies of his brain and brawn to produce that result.

Daniel Webster, in one of his familiar letters from England, while he was minister at the Court of St. James, to John Taylor, the manager of his Marshfield farm, said that he had investigated with some care the system of farming in England, and been brought to the conclusion that it required more talent, more knowledge, better judgment and more labor to be a good farmer than is required to be a great statesman.

Let us return, for a moment, to the old ante bellum farmer of Southside, Virginia. How many of them paid particular attention to the breeding of stock? Is it not a fact that, as a rule, their cattle on a thousand hills were slab sided, crumpled-horned or no horned cows, and stump tailed steers; their sheep of no particular breed, which were turned into old fields to live on broom sedge, mullen tops, and sassafras buds in summer time, and fed on wheat straw and corn tops in the winter; their hogs, the pine rooting razor back that could hear an acorn drop five hundred yards and beat a fox hound getting to it? And the rat tailed mule that was expected to do double duty on nubbins and corn shucks. They had thoroughbred horses, which were the pride and glory of their lives; whose sires and dams were imported from England, and whose fame was established in Europe and America; and it was a grand sight to see them on their high-mettled, dauntless steeds, whose feet spurned the earth as they fol-

lowed in the wake of an imported pack of fox hounds chasing Red Reynard over the beautifully undulating lands of Southside Virginia. It was grand, it was magnificent, but it was not farming. If they had been as careful in the cultivation of their lands and the breeding of their cattle, sheep and hogs, as they were in breeding and caring for their thoroughbred horses, their children would not have been called on to sorrow over the inheritance of poor lands and nothing with which to work them. The trouble now is that many of their children are content to walk in the ways their father trod, and tickle an acre of poor land for two barrels of corn, or ten bushels of wheat, or five hundred pounds of second-class, lizard tailed tobacco. But, I am glad to know on the other hand, that many of our people are realizing the demands and necessities of the farming interest, and are demonstrating the wisdom of good farming in profitable results. I know farmers in Prince Edward County, some of them near, and within a few miles of this beautiful, busy little town, who make farming profitable, and whose farms are improving in productive capacity and money value every year. The outlook for improvement in agricultural conditions in Virginia is encouraging—the evidence of growing interest is palpable. We have an Agricultural and Mechanical College at Blacksburg, whose graduates are annually going out into the world with much useful knowledge to be applied to practical farming.

The Commissioner of Agriculture is the designation of an office in the administration of the State government, and the beneficial evidence of the work which has been, and is being done by that department, is visible in many ways. During the past summer, the present incumbent of the office organized Farmers' Institutes in many parts of the State, and men of education and large experience in various branches of agriculture were employed to attend meetings of farmers, and deliver lectures on principal subjects of interest. Now arrangements are being perfected for the establishment of experiment stations in various sections of the Commonwealth from which great benefit will be derived by farmers who will take sufficient interest in them to keep informed about their work and its results. You are to be congratulated on the enterprise of the public spirited business men whose organized efforts have brought you together on this occasion, where the best specimens of the products of the surrounding country are to be seen, and where the handiwork of wives and daughters in every branch of household work and adornment is displayed.

I do not think we fully appreciate the value of our possessions. Our location is in the most temperate part of the temperate zone, making our climate bearable at all times, and absolutely delightful in its normal condition. We are protected from the cyclones of the west by the Appalachian range of mountains, and the tidal waves of the sea by the Gulf Stream. Our lands are intersected by the greatest abundance of pure water, which never fails for man or beast. It would be a difficult matter on most farms in Southside Virginia to enclose a twenty-acre field without embracing a part of a stream of water which never gets dry. Artesian wells, or other artificial means for supplying water, is not a problem which demands our attention. It is not a theory, or an opinion, but a demonstrated fact that nineteen-twentieths of our lands are capable of the highest state of fertility—fertility as great as that of England, or France, or Germany, or Holland, where a ten acre farm is a veritable mine of wealth to the owner. The variety of its production is greater than that of any of the countries just mentioned. Our people are as quiet, peaceable, law abiding as any in the world; churches and schools abound in every neighborhood. We have public schools from the lowest to the highest grade for the education of our boys and girls; and colleges and universities to fit our young men and women for the highest intellectual work. Surely this land is a goodly heritage with which Almighty God has blessed us.

Now, let us resolutely turn our backs upon all the mistakes and failures of the past, and with strong arms and brave hearts apply ourselves to the great work of restoring our waste places. The man without hope is the adopted child of despair; poverty is the parent of vice, ignorance and decadence. The end of unprofitable labor is poverty. Let every man here determine that when the Farmville Agricultural and Mechanical Fair is held again he will be here with the best specimens of products from the farm, the best horses, the best mules, the best cows, the best sheep and the best hogs; let every famer's wife here determine that at that time she will have on exhibition the best chickens, the best turkeys, the best ducks, the best geese, the best domestic fowls of every kind; and the best of everything that makes the dining table inviting, and the house and yard and garden beautiful and attractive; all struggling in generous rivalry for the first premium in each and everything.

But how is all this to be done? It can be done only by thoughtful care and enterprising labor. Invest just a small amount in the best agricultural journal; then acquaint yourself with its teachings and apply them to your business. Encourage your county paper. A good home paper is one of the most helpful means to success in any business. Demand good highways from your county government, and express your willingness to be taxed to get them. Pay the road tax and relieve yourself of unnecessary blacksmith's accounts in mending broken vehicles. Have your roads so improved that where you can haul not more than eight hundred or a thousand pounds now, you can haul twenty five hundred or three thousand pounds without straining your horses in the shoulders, and filling their joints with ring bones, spavins and stifles, and covering their backs and shoulders with blisters and galls. Don't depend on what you know, but find out from every possible source what is necessary to make your business a success. Learn everything that the best farmers in Europe and America know about farming and apply your knowledge to the improvement of your lands. Get rid of every acre of land on which you pay taxes and do not work profitably. If you haven't the means to work five hundred acres profitably, sell two hundred and fifty; if you can't work two hundred and fifty, sell a hundred or a hundred and fifty; if you can't work a hundred so as to improve it every year, sell fifty or twenty-five, or thirty, or forty, and put the proceeds of sale in intelligent labor on ten. Everything that is useless is a burden. "Don't bite off more than you can chaw." Don't own more land than you can work, with benefit to yourself and the land too. Determine to have the best of everything, and make the best use of it. Con-

sider the fact that your labor is not for a year, but a lifetime; not only your lifetime, but that of your wives and children. Prove to the boys that are growing up around you that farming is the noblest of professions and one of the great sciences, with more dignity, independence and self respect in it than any business in the world; so that when they reach manhood they will not be tempted to leave beautiful homes, all smiling with plenty, and seek success in the madding strife and struggles of life in great cities. Instead of making your labor tributary to the cities, make the cities tributary to you. Brains and property rule the world. Be your own rulers. There was a time in the history of this dear old Commonwealth when the intelligence, culture, refinement and ability of her people were in the rural districts, and the farmers ruled the cities. Let us have it so again under these new conditions which have come upon us out of conquest, and the destruction of that old civilization. Cherishing the past in all its glorious memories of heroic courage, self-sacrificing endurance, and devotion to liberty and justice, let us build upon the ruins of that old civilization the temple of progress and improvement, whose corner stone shall be the fear of God, and love of liberty restrained by law.

Now, let us hear the conclusion of the whole matter: Find out all that I don't know about farming and combine it with what you do know about it, and with diligence and cheerful, cheering hope apply it all to the land, and in a few years Southside Virginia will be a new land of promise, teeming with abundance and blest with prosperity.

"To catch Dame Fortune's golden smile,
Assiduous wait upon her,
And gather gear by every wile
That's justified by honor;
Not for to hide it in a hedge,
Nor for a train attendant,
But for the glorious privilege of being independent."

On behalf of the management of this Fair, I bid you a cordial welcome to the hospitality of this beautiful little commercial centre. It is an occasion for recreation and instruction for the men and women, and innocent pleasure for the boys and girls. Let it be so encouraged that it will become a permanent institution for the betterment of all the people in whose interest it has been organized.

A WARNING.

Angora Goats and Belgian Hares.

Editor Southern Planter:

Under the above caption, I find an article in the August number of the *Southern Planter* by Percival Hicks, of Mathews county, Va., which is very well calculated to mislead the readers of the *Southern Planter*. He starts out by saying, "The farmers of Virginia had best be careful in the acceptance of the truth of all the literature now circulated concerning the Angora goat and Belgian hare.

What little I have to say on this subject shall be from a practical standpoint. As to the Angora goat, I know but little, but with the Belgian hare I feel thoroughly at home, as I keep from forty to one hundred all the time. I also keep on my farm of 400 acres, cattle, sheep, hogs, and poultry, and to day would dispense with any one of them before the Belgian hare. I consider the meat superior to any of them. It has none of the heavy oily substances found in the turkey, duck, or chicken, and the strong gamy flavor of the wild rabbit is lacking. I am satisfied they can be raised at one-half the expense of any kind of poultry.

As to these two animals becoming a nuisance as wild animals, the whole thing is visionary. Our legislators are constantly being called on by the people to pass rigid laws against the hunter and trapper for the protection of game of much less value than the Angora goat and Belgian hare.

Turn any animal loose that is such valuable food for man as these two, in a densely populated country such as we find east of the Mississippi river, with its teeming millions, and I will guarantee their freedom to be of short duration, unless the boys, dogs and shot-guns are muzzled, and the people cease to hunger or sport.

I am raising the Belgian hare altogether for home consumption; never advertised one in my life, so have no axe to grind.

In both France and Belgium thousands of dollars are made each year in raising hares for market. The *Rural New Yorker*, of August 8, 1891, contained the following: "It perhaps would surprise many of our readers to know the value of rabbit meat shipped to market. In one year alone there was $1,370,000 worth of rabbit meat shipped to London. These come from France and Belgium, and are raised by the peasants of those countries."

It would be hard to estimate the amount received annually from the sale of the common field rabbit in Virginia. One grocery store in my neighborhood takes in every fall from four to six thousand. These rabbits weigh from one to one and a half pounds, and are sold readily in the Lynchburg market at 12½ to 15 cents a piece, or about ten cents per pound. It brings in the aggregate a considerable revenue to the farmers, while we never hear of any injury they do to the crops. The Belgian hare will dress from four to six pounds, and the meat is decidedly preferable to that of the wild rabbit. Then why not, if practicable, substitute the superior in the place of the inferior species? However, the Belgian hare is so completely domesticated and thrives so well under the closest confinement that it is questionable whether they would prosper in the wild state for several generations. They certainly will not cross with the wild rabbit.

Mr. Hicks mentions the baleful effects of the introduction of the European rabbit into Australia as early as 1864, which is not a parallel case with any part of the United States. The interior of Australia was at that time, and still is, largely a waste. Is it any won-

der the rabbits increased? Man was not there to consume them; they were only carrying out Darwin's theory, "The survival of the fittest"?

All the adverse criticism we hear of the Belgian hare is from persons who have no personal knowledge of their intrinsic value. Some people are prone to predict a hurricane in every little cloud that floats on the horizon.

Campb-ll Co., Va. T. L. KABLER.

BELGIAN HARES AND PIGEONS IN CALIFORNIA.

Mr. Wing, writing in the *Breeders' Gazette*, says:

Californians seem unable to do anything at all unless they boom it For instance, they have taken up the breeding of the Belgian hare. To day there are over 800 breeders of Belgians in Los Angeles alone. Fortunes have been made in the business. Prices are very high for the best stock. For instance, the imported doe shown in the picture is worth $350.

What is a Belgian hare? It is a most interesting matter, when you come to look into it. The Belgian is not a hare at all; it is a mammoth rabbit, bred by careful selection to look as hare like as possible. That is what the breeders are carefully striving for to-day—that graceful, slender, hare like form, that hare's foot, that rich, dark, reddish, "wavy" mottled color, that thin, erect, sprightly ear and bright, alert eye. It is true that the Belgians now resemble mightily the wild hares, when they are well bred, yet they will not cross; the resemblance is but skin deep, it would seem.

I went to see Mr. M. A. Long, who seems to be looked up to as a leader, and who breeds and imports a great number of hares, and from him I got this information. He says that the hares are really very useful, aside from their interest and beauty. One butcher of Los Angeles has killed in the past year over 2,000; they have dressed an average of three and one half pounds, and the meat has sold at an average of 20 cents per pound. Of course many more are killed for home consumption than in any other way, and doubtless they are better for the villager to keep than chickens, for all he needs is a few old boxes, a few yards of wire netting and a little time for caring for them. They will consume all his weeds, and thrive on alfalfa and willow sprouts and the trimmings from his vines and trees, with a little grain to finish them for market.

Even the children in Los Angeles are caring for their bunnies. It seems a very simple matter, and they certainly thrive remarkably. Whether the interest will spread to the East is an interesting question. I suppose that it will, but we may not become so enthusiastic as our California cousins have become. It is worth note that in the illustrations there is shown more than $1,000 worth of hares. At first I did not see the difference between a good hare and a common one, but after the eye has a little training it seeks the trimness, the grace and beauty, and cannot be satisfied with the shapelessness of ordinary rabbits.

One would hardly think of booming pigeons, yet Mr. J. Y. Johnson has made quite a success of it. I think it about the prettiest thing that I ever saw, this cloud of pigeons! He has over 6,000 of them, all on about two acres of land in the suburbs of the city. The roosts are in boxes, piled up to make buildings, which are roofed with substantial roofs. The pigeons are of all sorts, and he says that there is not much difference—one is about as valuable as another. They never leave the yard. He feeds them at noon about ten sacks of mill screenings; what per cent. of grain there is in it I did not learn. I was unfortunate in not getting there at feeding time; it is said to be a most beautiful sight. Cats are the only enemies, and cross dogs patrol the place to keep cats at bay. He sells the squabs just before they fly, selling about 150 dozen a month, for which he gets $2 per dozen. I do not see why any bright lad could not build up such a business as this, the main points seeming to be to feed the flock so well that it will not fly away and thus be lost or killed by sportsmen or boys. No attempt to confine the pigeons at any time is made, the feeding at regular time and in abundance seeming to be all the attention needed.

THE LUCRETIA DEWBERRY.

Editor Southern Planter:

One of the great drawbacks to the general cultivation of this really valuable fruit lies in the difficulties that are met with in its trailing habits, necessitating, as it does, tying the vines up and turning them in in order to give them proper cultivation.

So far as the first year's growth is concerned, the skilled agriculturist will easily master all obstacles.

We manage them very well by carefully training the vines all one way. As soon as the runners get two or three feet long, we begin to pull them across the row all on one side of the hill, turning them out of the way when they are to be worked, and again carefully replacing them after cultivation.

By this means we have, when we go to stake them in spring, all the vines of one hill in a single bunch, well separated from neighboring hills, so that it is a comparatively easy matter to tie them to the stake. But when a patch is left for the second year's fruiting the grower has a problem.

The vines begin to grow early in the season, often attaining a length of five feet or more by the time fruit comes off the old canes. Then, after the old wood is taken off, and the land gotten clear, the wisest grower has a difficult task, to say the least. They are frequently so tied and twisted and warped together that to separate them means their destruction.

Some have the past summer adopted the plan of cutting away all the canes, old and young, just as soon as the fruit is harvested. If this will not damage the succeeding crop, it is certainly commendable, as it makes their culture easy. It would also greatly cheapen the cost of production, as where they are planted as we plant them in checks, 3 x 6 feet, they can be worked both ways, obviating the expense of

hoeing. And besides, a mowing machine can be utilized for pruning as well or better than a pair of shears. However, this plan is by no means certain of success, and we would advise no one to more than experiment with it until they are satisfied that it is available.

One of the chief difficulties in their habit of growth —viz: the tendency of growing to a length of several feet, and then rooting, can be easily met by our system of training. The canes are all across the rows, and about the time they commence to "tip," we run a revolving runner cutter over them, about five feet from the hills and one foot from the next row. This completely severs the ends, and still leaves them quite long enough to stake.

There is one impression in regard to this berry that we believe to be erroneous. Many contend that it is useless to plant them on thin soils. Now, we do not mean to say that they will not grow better on rich land than on poor, but we consider a rank, luxuriant growth a fault instead of a favor, not only making them more difficult to train properly, but they often become so dense that the lower vines are smothered Had we our choice, we would always prefer soil of moderate fertility. They seem to thrive on any soil, sandy or clayey, high or low, and, like other "briers," do not fail to make a growth wherever given a respectable chance.

J. W JONES & SON.

Wicomico Co., Md.

FRUITS AND VEGETABLES AS FOOD.

Recent experiments of the Department of Agriculture show that fruits generally contain remarkably little that is convertible into muscle and blood. Bananas and grapes have 2 per cent., while apples, cherries, strawberries, blackberries, cranberries, lemons and oranges are able to lay claim to only 1 per cent., when skins and seeds are put aside. On this account, such articles of diet are obviously ill adapted to sustain human life for any length of time, though they possess great medicinal value and contribute much to health.

Fruits are, however, relatively rich in sugar and starch, and hence are useful as fuel to keep the bodily machine going. Bananas have 27 per cent. of these materials, grapes 21 per cent., apples 16 per cent., cherries and cranberries 11 per cent., oranges 9 per cent., lemons 8 per cent., and strawberries 7 per cent. In this case, as before, only the edible portions are considered. Blackberries and grapes have 2 per cent. of fat, and the other fruits mentioned contain 1 per cent. Watermelon pulp is 92 per cent. water.

Among vegetables, Lima beans have the highest food value, containing 32 per cent. of nutrients. Sweet potatoes come next, with 29 per cent., green peas next, with 22 per cent., white potatoes next, with 21 per cent., and string beans next, with 13 per cent. Green sweet corn has 19 per cent. of nutrients, beets 12 per cent., turnips 11 per cent., cabbage, cauliflower and spinach 8 per cent., turnips, egg plant and lettuce 7 per cent., tomatoes and asparagus 6 per cent., and cucumbers 4 per cent. Dry beans or rice are about the most economical foods one can buy, containing as they do 88 per cent. of solid nutriment.

THE DAIRY BREEDS OF CATTLE.

Prof. Woll, of the Wisconsin Experiment Station, in a communication to the *Breeder's Gazette*, gives the following as the order of excellence of dairy breeds based on herd records published by American Experiment Stations:

As to total annual production of milk: First, Holstein-Friesians; second, Shorthorns; third, Ayrshires; fourth, Jerseys; fifth, natives; sixth, American Holderness; seventh, Guernseys and Devons.

As to total annual production of butter fat: First, Jerseys and Shorthorns; second, Guernseys; third, Holstein Friesians and Ayrshires; fourth, natives; fifth, Devons, and sixth, American Holderness.

As to cost of food per year: First, Guernseys; second, Shorthorns; third, American Holderness; fourth, Jerseys; fifth, Ayrshires; sixth, Holstein Friesians.

As to cost of food required to produce 100 pounds of milk: First, Shorthorns; second, Guernseys and Ayrshires; third, Holstein-Friesians; fourth, American Holderness, and fifth, Jerseys.

As to cost of food required to produce one pound of fat: First, Guernseys; second, Shorthorns; third, Jerseys; fourth, Ayrshires; fifth, Holstein-Friesians, and sixth, American Holderness.

It is a significant fact that different breeds lead in the above enumeration of order of excellence as to production of milk and fat, total food cost, or cost of food required for the production of a unit of milk or fat. It bears out the statement that no breed has a monopoly of all good points. The Holstein Friesians lead when the total product of milk is considered; the Jerseys share the honor of first rank as producers of butter fat with the Shorthorns; the Guernseys show the lowest total cost of food per year and the lowest cost of food per pound of butter fat produced, while the Shorthorns are ahead in food economy per unit of milk produced. These results are in accordance with popular belief as regards the standing of Holsteins and Jerseys as milk and butter fat producers, respectively, and as regards the Guernseys as economical producers; and they also corroborate the results of earlier tests that have furnished material for comparison of dairy breeds.

At Hartford, Conn., on September 7th, the bay mare Lamp Girl, by Waker Morrill, dam Bertie, by Signet, sold in 1899 by J. R. Bull, Bobtown, Va., to New York parties, won the first heat of the 2:17 class, trotting, taking third money in the race, which was one of six heats, and reducing her record from 2:14¾ to 2:11¼. Lamp Girl was foaled in 1893, and bred by William C. West, Onancock, Va. She now holds jointly with Miss Nelson, by Norfolk, the record for Virginia-bred trotters.

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We Invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles. Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,
RICHMOND, VA.

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PUBLISHERS' NOTES.

What One Practical Farmer Thinks of the Planter.

The following testimonial from a gentleman with a wide knowledge of the agricultural journals of the country, and withal a practical farmer, is most gratifying to us. It came unsought and unasked, but was none the less welcome. Will you not bring the *Planter* and this testimonial to the attention of your friends and ask their subscription. We shall esteem such an act a personal favor.

RE READ THE PLANTER CAREFULLY.

Editor Southern Planter:

I have quite a number of farm papers, but in all of them together I do not find as much real solid practical information for the tiller of the soil as in the *Planter*. I have read and re read and very carefully studied the September issue four times, and I find new and valuable suggestions and confirmations of facts stated and re stated of untold value each time. Mr. Editor, the *Southern Planter* is an encyclopedia of practical scientific farming for the South, whose equal is not to be found anywhere else in the whole range of agricultural literature. The people from Virginia to Texas should give you a million subscribers.

A PRACTICAL FARMER.

A great deal of hay remains yet to be marketed, and undoubtedly many of our readers are considering the purchase of a baler. To such we would advise writing to P. K. Dederick's Sons, Albany, N. Y., who advertise in these columns, and who make probably as large a line of machines as any one in the country. Mr. P. K. Dederick, the senior member of the company, is the pioneer hay press man of America, and he has always kept his machines up in the front rank for efficiency and improvements. This is proven by the fact that more patents have been issued to Mr. Dederick on hay presses than to any other manufacturer of presses. They make every approved pattern for every purpose and sell them at right prices. Please write for their new catalogue, mentioning the *Southern Planter*.

GASTON STOCK FARM.

Pure-bred Holstein and Jersey cattle are advertised by this well-known farm, of which John N. Deitrick, Somerset, Va., is proprietor.

WOOD'S SEEDS.

Hyacinths, Tulips, Lilies,

and **Other Flowering Bulbs,** must be planted in the fall, either in pots or the open garden, to give the best results. They are easy to grow, and make beautiful flowers during the winter and early spring. Our Bulbs are imported direct, and the very best—same as we have supplied to our florists and largest gardeners here for years.

WOOD'S DESCRIPTIVE FALL CATALOGUE tells all about them; descriptions, prices, and how to plant and care for. Send for it. Mailed free.

WOOD'S EVERGREEN LAWN GRASS SEED is unequalled for making a beautiful green lawn.

T. W. WOOD & SONS,

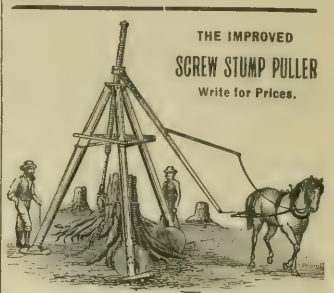
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We will give One Hundred Dollars for any case of Deafness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Send for circulars, free.

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Sold by Druggists, 75c.

Hall's Family Pills are the best.

BLACKLEG.

It is well known that blackleg is particularly troublesome in the fall, and perhaps a word on the subject of black leg vaccination may be of interest to our readers. The merits of the operation are well proven beyond the shadow of a doubt, so that a discussion on that point is not necessary However, in spite of the fact that cattle raisers recognize the necessity of vaccination, yet many of them put it off from week to week, trusting that luck will see them through, and it is these cattle raisers especially to whom we desire to point out the danger of such a short-sighted policy. By deferring vaccination until the disease breaks out in your herd or in your immediate neighborhood, you sustain an unnecessary loss in the first instance, and court disaster in the second. Such being the case, vaccinate early in the fall, and place yourself on the safe side. *Now* is the time to vaccinate; do not postpone it, and then feel sore when you lose from blackleg. Another and most important point is the *Vaccine*. The whole success of the operation depends on the reliability of the vaccine Don't be imposed upon by venders of so called cheap vaccine, and exercise due caution in regard to experimental vaccine which are distributed gratis to give experience to their makers or for government inquisitorial or statistical purposes. It is a good plan to use that which has proven successful and reliable by many years of constant use. If you cannot readily obtain it in your neighborhood, ask your druggist to purchase it for you Stipulate that it bears the name and trademark Pasteur. Write to the Pasteur Vaccine Co., of Chicago, who handle the original and genuine article, and obtain some information which will be of special interest to you at this time, particularly regarding the *vaccine which is ready for use as sold*. The Pasteur Co. has branch offices at St. Paul, Kansas City, Omaha, Fort Worth and San Francisco.



THE STATE'S DUTY TO AGRICULTURE.

Every one knows that all wealth comes from the ground, whether it is in the form of crops, the products of the forests, or the mines. Upon Mother Earth rests the foundation of all wealth. Illinois is pre-eminently an agricultural State, and this has made her great. The road laws of Illinois are fifty years behind the times. The Legislature should pass a progressive, up-to-date State Aid Road Law. Among the changes necessary, are:

First. Wipe out the path master and the "working out road tax" system. Let road taxes be paid in cash, and let the money be wisely and economically expended. Two men and four horses with machinery made for the purpose can shape up more roads in a day than ten men and twenty horses can do in a week without it, and they will do a much better job. Put in more drain tile.

Second. Permit the farmers of a township to vote upon issuing twenty year 4 per cent. bonds to build permanent roads. Let the State pay from one-third to one-half the cost, and let the county contribute also.

Third. Have the road building and maintaining done under experienced supervision. Teach road making in the State University and the Agricultural Colleges. It takes skill, experience and judgment to build a good road, no matter whether it be a stone or dirt road.

The farmers have helped to build rail roads in times past; now let the railroads, corporations, towns and cities help build good wagon roads in the country. They will all be benefited and they should pay a part of the expense.

FOUR MILES FROM TOWN.

Suppose you live four miles from town, if you have hard roads—

You can haul four heavy loads per team per day.

Your son or daughter can go to town, get the mail and return in an hour and a half.

They can attend the town high school, and reach it in thirty minutes on a bicycle.

You can get the doctor out in half the time if you need him quick.

If you break down at harvest or threshing time, you can go in and get repairs and get back in half the time.

If you want to go to church, you can do so in comfort every day in the year.

When it is too wet to work in the fields, the hired man can haul grain or stock to the market.

Distance is no longer measured by the yard-stick, but by the clock's tick. Good roads cut every mile in two. You can go to town and get back before the other fellow on the poor road reaches town.

With good roads, that steep, hard hill is cut down, the low place filled up and easy grades established. Driving on good roads is a pleasure and not a task. Good roads make farm life worth living.

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He that maintains "the perfect circulation of pure blood in a sound organism," or in other words, good health, may live both long and well. A great multitude of people gladly testify that Hood's Sarsaparilla has cured their diseases, given them good health, and lengthened their lives.

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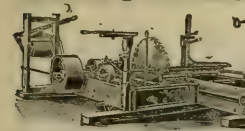


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Mention this paper.
HENCH & DROMGOLD, Mfrs., York, Pa.

Saw Mills, Four-horse power and larger, Shingle Mills, Planers, Edgers, Lath Mills, Grinding Mills, Water Wheels, Baling Presses, etc. Our Saw Mill cuts 2,000 feet per day with 4 h. p. Variable Friction Feed, Friction Set Works and Champion "Duplex" Dogs; ahead of all others; the only Saw Mill sold all over the world. Send for large catalogue and state just what is wanted. DELOACH MILL MF'G CO., Box 600, Atlanta, Ga.



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It grinds all kinds of grain, wet or dry, coarse or fine, with greater ease than any other mill made. No friction, extremely light draft.
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4 **Buggy Wheels with tire on, $7.25. With Axles Welded and Set, $11.00,**



I make all sizes and grades with steel or rubber tire. Send for catalogue giving prices on wheels 2¾ to 4 in. tread, with instructions for ordering. Portland Sleighs, $17.50; Bob Sleds, $16.50. Special grade wheels for repair work, $5.50, if you write to-day.
Freight Prepaid. W. V. BOOB, Centre Hall, Pa.

THE GREATEST VEHICLE PLANT ON EARTH.

The present firm of Studebaker Bros. Mfg. Co. commenced business in a small shop for shoeing horses and doing repair work in South Bend, in February, 1852.

A few tools and cash to the amount of $58 constituted their capital.

The brothers had learned the trade of their father at Ashland, Ohio, before coming "West."

During the first year of their business in South Bend two wagons were made; one of these wagons is said to be still in use.

The growth of the business was naturally at first slow. A contract for army wagons in 1864 gave them their first important start.

A few years later the frame factory operated by them burned to the ground in thirty minutes.

Then they built with brick and added more year by year.

In 1868 they took out a charter as a stock company.

Again fire swept away their all.

The ruins were yet smoking when new and more extensive walls began to rise. The buildings to-day are mostly four and five stories high, having an actual floor surface of 40 acres. The yards contain 60,000,000 feet of lumber—the entire plant covering an area of 98 acres, by far the largest of the kind in the world.



From far and near came the demand for Studebaker vehicles.

The force of employees grew to one hundred, two hundred, three hundred, and on up to ten, fifteen, twenty, and now, including some hands employed at the various branches, has reached a total of 2,500 men.

The output to day is near one hundred thousand vehicles each year.

They go East, West, North and South, many to Mexico, Hawaii, the Philippines, Australia and South Africa; some to Cuba, Porto Rico and South America, while every nation on the globe has been kissed by the wheels of a "Studebaker."

The styles range from the two-wheel cart to a President's state laudau, and embrace every variety in common use for pleasure driving or business purposes.

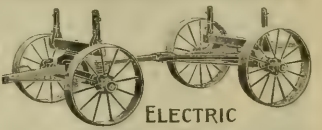
They have branches in Chicago, New York, San Francisco, Portland, Ore., Kansas City, Salt Lake City, Denver, St. Joseph, Mo., Springfield, Mo., and upwards of 2,500 agents who handle the Studebaker lines exclusively.

ASBESTOS ROOFING.

The Asbestos Manufacturing Company, Philadelphia, Pa., is advertising in another column, Asbestos Roofing and Building material. Catalogue and samples will be sent to those requesting them.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.

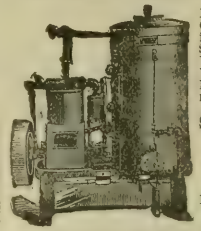


ELECTRIC

This wagon is composed of the best material throughout—white hickory axles, steel wheels steel hounds, etc. Guaranteed to carry 4000 lbs. These Electric steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels, a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 146, Quincy, Ill.



After Being on the Market TEN YEARS,
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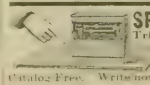


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Self-Acting Oats Cleaner

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WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and coupling furnished. Ranging in lengths to 20 feet.

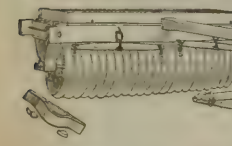
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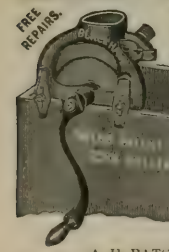
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Life time on truck and stock farms. Was foreman on large estates. Not afraid of work. Single; age 37. Address

"MANAGER,"
126 N. Texas Ave., ATLANTIC CITY, N. J.

PAINT TALKS—XXXIII.

"Inside" Painting.

Whatever questions may honestly divide experts as to the proper composition of paints for use on the outside of buildings, probably all disinterested people whose opinion is worth having will agree that zinc white is the only satisfactory and safe paint base for use in occupied rooms.

The only a ternative white pigment is white lead, and while it is needless to make invidious comparisons, it is worth remembering that if lead be applied with much oil it quickly turns yellow in the absence of sunlight, while if applied with little oil it disintegrates and the dust thus set free is poisonous. Furthermore, there is always more or less sulphuretted hydrogen present in dwelling houses, and this is fatal to the color of lead paints.

Any paint, white lead included, is safer than old wall paper on the walls of a living room, since paint can be washed and freed from disease germs; but the combinations based on zinc white are preferable for this use on every account to any other form of paint, and especially is this so when the paint selected is a so-called water paint, or where the paint is used with very little oil, to produce a "flat" effect.

In the latter case turpentine or benzine takes the place of oil, and on evaporating, leaves the pigment very loosely bound, especially if the proportion of oil originally absorbed by the pigment be small, as is the case with lead. If the pigment be of a deleterious nature the danger of using such paint is obvious.

There are really very few poisonous pigments now used as house paints, and even these are far less deleterious than the deadly Paris green, King's yellow, verdigris and quicksilver vermilion of our ancestors. But white lead, lead chromes, and Prussian blue are poisonous and should be avoided, or used in combinations with which "chalking" is impossible, if used at all for interior work.

Zinc white is a satisfactory base for such use without admixture; but even when other pigments are used with it in not excessive proportions, it will prevent "chalking," and chalking is the one thing to be most carefully avoided in paints with which we come in daily contact and which may affect our health.

STANTON DUDLEY.

THIS IS WHAT THEY SAY.

Those who take Hood's Sarsaparilla for scrofula, eczema, eruptions, catarrh, rheumatism or dyspepsia, say it cures promptly and permanently, even after all other preparations fail. You may take this medicine with the utmost confidence that it will do you good. What it has done for others you have every reason to believe it will do for you.

Constipation is cured by Hood's Pills 25c.

FRAZER AXLE GREASE.

There is no need of being imposed on if you will insist on having the Frazer Brand of Axle Grease. One greasing will last two weeks.



In every town and village may be had the

Mica Axle Grease

that makes your horses glad.

Made by Standard Oil Co.

FRAZER

Axle Grease Best in the world.

Its wearing qualities are unsurpassed, actually outlasting 3 bxs. any other brand. Not affected by heat. ☞Get the Genuine.

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PAGE

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and supply Page Fence to your neighbors now?

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Makes and Repairs any kind of Wire Fence. Uses old barb wire fence, heavy or light stay. Pig-tight, 12 to 20 cents per rod. Price, $5.00. Special price to first.
M. HAYS, MONMOUTH, ILL.

M. M. S. POULTRY FENCE
Half cost of Netting. Requires few posts, no tools. Best Hog, Farm, Yard, Cemetery Fences. Freight paid
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GINSENG—Book all about it 4c. Tells how to grow this great money maker. Write to-day. AMERICAN GINSENG GARDENS, Rose Hill, N. Y.

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All prices and sizes. Free list on application.
WM. B. PIZZINI CO., Richmond, Va.

IVANHOE POULTRY YARDS.

The annual catalogue of the Ivanhoe Poultry Yards, Box 259, Richmond, Va., is before us. As usual, it is full of interesting matter for prospective buyers of Plymouth Rocks, which these yards breed exclusively. It will be mailed free upon request. Address as above.

MALARIA AND THE MOSQUITO THEORY.

Laveran's discovery of the parasite which causes malaria was a pronounced step forward in our knowledge of the disease, but not by any means so radical and important as the development of the fact, years before, that the bark of the cinchona tree was a definite enemy to the malarial poison.

Daniel Drake, in the earlier days of our medical history, was a persistent student of this almost universally distriburbed disease, and in his work published years ago with the title, "Autumnal Fevers of the Mississippi Valley," he presented contributions which stand to-day as almost classical.

The earlier as well as the later students, observers and writers on the subject have favored the thought that the mosquito was in some manner closely related to malaria. As far back, in fact, as the beginning of the Christian Era, writers touched upon the relation of the mosquito to malaria, and among the early American writers along these lines may be mentioned Mitchell, of Philadelphia; Nott, of New Orleans (in 1848); and King, of Washington (who published a pamphlet in 1883), giving numerous plausible reasons for sustaining the theory.

The mosquito theory has been continuously studied, not only by Laveran in 1891 (he who discovered the malarial plasmodium); Pfeiffer, who evolved the specific germ of la grippe; as well as Bignani, but the great Koch, whose name will ever be associatod with the practical demonstration of the cause of tuberculosis, has for several years devoted much time and study to this branch of germ life.

All these theories regarding malaria are most interesting, but the facts of most vital import are those related to the cure of the disease.

The æstivo-autumnal parasites are energetically at work everywhere now.

Reports from South American countries are confirming deûnitely the fact, already observed and announced by many eminent medical men throughout America, that the synthetic product of organic chemistry, phenalgin, is of great value in fighting these parasites. From five to fifteen grains of phenalgin may be given every two to four hours. Inside of forty-eight hours the average attack of malaria will be aborted. Not only will this course of treatment be antagonistic to the poisons of malaria, but will soothe and relieve the distressing symptoms accompanying it, reducing the fever, allaying the aches and pains and causing a restful sleep.

Nowhere does malaria assume a more virulent form than in the tropical countries, and when we have such pronounced results in favor of phenalgin as an effective malarial germicide it is convincing. Following the above course for adults


Are You Deaf??
All cases of DEAFNESS or HARD-HEARING are now CURABLE by our new invention; only those born deaf are incurable. HEAD NOISES CEASE IMMEDIATELY. Describe your case. Examination and advice free. You can cure yourself at home at a nominal cost.
International Aural Clinic, Dept. 41 CHICAGO.

CANCER
You think, is incurable.
"I would take your treatment if I thought you could cure me."
Listen: You visit me. I will charge you no fee until I cure you. I can't cure you at your home.
No bloody knife.
No burning plaster.
Write for Illustrated book of Cures. Address the
DR. J. SILLS DANIEL SANITARIUM,
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Keeley Cure
For Drunkenness and Drug Using.
Please write in Confidence.
Our Illustrated Handbook Sent Free on Request.
THE KEELEY INSTITUTE, Dept. P., Greensboro, N. C.

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Habits Cured at my Sanatorium, in 20 days. Hundreds of references. 25 years a specialty. Book on Home Treatment sent FREE. Address
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For Sale Farm of 100 Acres, Near Crewe, Va.
The Norfolk and Western Ry. has its shops at this point. House of 3 rooms, nice shade. One mile from town. Price, $850
"BARGAIN," care So. Planter.

VIRGINIA FARMS
$3 PER ACRE AND UPWARDS.
EASY PAYMENTS. CATALOGUE FREE.
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FINE FARMS in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address
SAM'L B. WOODS, Charlottesville, Va.

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SAN JOSE SCALE and other insects can be controlled by using

Good's Caustic Potash Whale Oil Soap. No 3.

It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, $2.50; 100 lb. kegs, $4.50. Half barrels, 270 lbs., at 3½c. per lb.; barrels, 425 lbs., at 3¼c. Large quantities, special rates. Send for circular.

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939–41 N. Front St., PHILADELPHIA, PA

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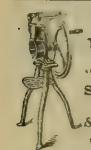
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REEVES CATT, Agent,
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Every Dehorner Guaranteed
THOUSANDS IN USE.
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Take Off the Horns.
The quickest, easiest and smoothest way, is possible only by the use of the
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and the Bucker Stock Holder. I also have a calf disbonner and all appliances for easy dishorning. West'n trade supplied from Chicago
Illustrated book free.
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The "DAISY" BONE CUTTERS
The Best in the World.
"Gem" Clover Cutter. The $5 Shell and Corn Mill, Farm Feed Mills, Power Mills.
Send for Circular and Testimonials
WILSON BROS., Easton, Pa.



A Good Incubator
Must Imitate Nature
The Iowa Hot Air Machines
are the ONLY ones to do this. Send for free catalogue.
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batches all the fertile eggs; is simple, durable and easily operated; 168 page catalogue containing information and testimonials. Sent free.
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ten grains of quinine (in capsules) accompanied by the same amount of phenalgin may be given at bed-time for two or three nights, after which a tonic composed of the following may be given three times a day for a week or ten days, viz.:

Quinine Sulphate.....	½ dram
Fowler's Solution.....	1 dram
Water.....	6 ounces
Glycerine.....	2 ounces

Shake. Dose: A tablespoonful at meal-times.—*Gaillard's Medical Journal.*

SILVER MEDAL AT PARIS EXPOSITION.

THE SOUTHERN PLANTER,
Richmond, Va.:

Gentlemen,—I have pleasure in announcing that the 6 H. P. Mietz & Weiss Gas Engine and 4 H. P. Direct Connected Kerosene Engine and Electric Generator have been awarded the Silver Medal at the Paris Exposition 1900.

Yours truly,
AUGUST MIETZ.

These engines are advertised elsewhere in this issue.—[S. P.]

Mrs. Smith repeatedly reminded her husband that the silver was hers, the furniture was hers, and so on, until poor Smith almost wished he had married a girl without a penny. The other night Mrs. Smith awoke, and, vigorously punching her husband in the ribs, called, "John, get up! There are burglars down below." "Eh?" inquired Mr. Smith, sleepily. "Burglars—down stairs!" shrieked Mrs. Smith. "Burglars?" said Smith, as he turned over. "Well, there's nothing of mine there!"—*Tid-Bits.*

PUMPS AND WIND MILLS.

The Temple Pump Co., of Chicago are advertising their 'Diamond" galvanized wind mills in another column in this issue. This firm has been in business for 47 years, and their long experience in the manufacture of pumps and wind mills gives them great advantage over other makers. They know what is best in their line, and supply it. Send for their beautiful wind mill book, mentioning the *Southern Planter.*

The best that money can buy should be your aim in choosing a medicine, and this is Hood's Sarsaparilla. It cures when others fail.

HIS OBJECT.

After I had watched a colored man fishing in a South Carolina brickyard pond for forty minutes without pulling up his hook, I asked him if he thought there were any fish to be caught. "No, sah, I reckon not," he replied. "But you seem to be fishing?" "Yes, sah." "But perhaps you are not fishing for fish?" "No, sah." I waited ten minutes for him to explain, but as he did not, I finally asked him what particular object he had in view. "De objick, sah," he repeated, without taking his eyes off the pond or moving the pole, "de object of my fishin' for fish whar dere hain't any is to let de ole woman see dat I hain't got no time to pick up de hoe and work in de truck patch!"—*Boston Beacon.*

POINTER PUPPIES

I offer a litter of Pointer Puppies of the best blood and finest breeding in the country. To sell them quickly, will take $10.00 for males and $5.00 for females.
GEO. T. KING, Jr., Box 1, Richmond, Va.

For Sale--PEKIN DUCKS.
Imported stock. Present price, $1.00 per pair; later higher. M. B. Turkeys, $5.00 a trio.
Miss CLARA L. SMITH,
Croxton, Caroline Co., Va.

..FOR SALE..
B. P. ROCK & S. C. BROWN LEGHORN
PULLETS and COCKERELS, 60c. each. Yearling Leghorn hens, 60c. Yearling P. R. hens, 75c.
Miss S. M. HITER,
Ellisville, Louisa Co., Va.

OLD DOMINION PROLIFIC LAYING STRAIN of
B. P. ROCKS and WHITE WYANDOTTES
Young stock ready for shipment September 1st. **All stock gauranteed pure** and **bred for utility.** Correspondence cheerfully answered.
Old Dominion Poultry Yards. J. H. SLEDD. Negro Arm, Va.

Cottage Poultry Yards.
Black Langshans
..EXCLUSIVELY..
Young stock now ready. Cockerels from $1.00. Trios not akin Price according to points. Eggs $1.00 per setting.
M. A. OLNEY, Coleman's Falls, Va.

..FOR SALE..
A few White Minorca
Pullets and Cockerels, price $1. each.
A few Brown Leghorn
Pullets and Cockerels, price $1. each.
T. W. WOOD, Richmond, Va.

BIRDVILLE POULTRY YARDS,
PETERSBURG, VA.
We desire to sell our whole stock in order to make a change in our business
Buff Leghorns..
Pullets, hens, cockerels and cocks one to three dollars
Mammoth White Pekin Ducks..
(Rankin strain) two to three dollars. White Holland Turkeys, two to three dollars.
White Guineas..
One dollar each.
100-egg Buckeye Incubator, 200-egg Prairie State Incubator, 288 Duck egg Prairie State Incubator, Brooders, Cutting Machines, Bone Mill, etc. **For sale very low, at once. Correspondence solicited.**

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va.
WALTER WATSON.

ROCK HILL FARM.

SHORTHORN CATTLE

—Also—

Brown Rose Comb Leghorns

25 Choice Cockerels, $1 00 each; 2 or more 75c. each; for the next 30 days

B. B. BUCHANAN, Brownsburg, Va.

FOR SALE—Registered

Red Polled Bull

(November 5, 1899.)

Proof against tick fever.

Dr. ERNEST NORFLEET, U. S. N., Roxobel, N. C.

Sheep! Sheep! Sheep!

Will sell a lot of good Breeding Ewes, already bred to good bucks. Will sell some fine O. I. C. PIGS and a few pure-bred ANGORA GOATS Inquire of JOHN MATHEWS, East Richmond. Va.

ELLERSLIE FARM

Thoroughbred Horses
AND SHORTHORN CATTLE,
Pure Southdown Sheep and Berkshire Pigs.

FOR SALE. R. J. HANCOCK & SON, CHARLOTTESVILLE, VA.

STORY OF QUEEN VICTORIA.

A writer in the *London Quiver* tells the following story of Queen Victoria, and vouches for its truth. When the Queen was only seven or eight years old, she had set her heart on a certain doll which she had seen in a shop window. She had to wait, however, until she could save the price—six shillings—out of her pocket-money. At last the day came, and the coveted doll was paid for and received. The story proceeds as follows:

"And now, with the precious treasure upon her arm, the little lady bade the shop keeper good afternoon, and was about to step from the door, when a poor miserable looking object of a man met her eye.

"Encouraged by her winning voice, the poor man said, in trembling accents, 'I am very hungry; I would not ask for help if I were not ready to sink with hunger.'

"He was standing but a couple of feet away, and seemed as though he were going to speak to her, attracted, doubtless, by the innocent kindliness of her expression and the tenderness of her blue eyes; but though his lips moved, no sound came from them

"He stood aside to let her pass—a mute, agonizing appeal in his sunken cheeks and quivering chin,

"'Did you wish to speak to me?' asked the little lady, staying her steps.

"He looked famine from his eyes.

"'I am so sorry I have no money, or else'—

"His lips trembled forth an humble 'Thank you, lady,' then he shuffled on his way, hunger impersonate.

"'Stay!' murmured the little owner of the new doll There was a quiver in her childish voice and a moisture in her eyes as she spoke, 'Wait a minute, please.'

"She stepped back into the shop, approached the woman behind the counter, and said, 'Oh! please, do you mind taking the doll back and keeping it for me for a few days longer.'

"'Certainly I will,' replied the shop-keeper; 'and you wish me to return you the money?'

"'Yes, if you please.'

"This was done, and the little lady, hurrying out of the shop, placed the whole of the money in the hands of the starving man

"He was like one thunderstruck. Never had bounty rained upon him in such profusion before.

"The object of her bounty murmured in a low tone, though loud enough to reach her ear, 'If the Almighty made you a queen, it would not be more than your goodness deserves!'"—*Unidentified.*

THE ACME ENGINE.

Farmers requiring small power, should investigate the merits of the Acme Engine, made by the Rochester (N. Y.) Machine Tool Works. This engine has been on the market for more than 10 years, and has stood every test. For cutting feed, filling silos, churning, sawing wood, and other general uses, the Acme has an economical power, can't be beat. Send for further particulars.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to

ASA B. GARDINER, Jr., Manager,
GLENCOE, MD

The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow

We mail a little "Book of the Herd" on request.

..We Offer a Fine Lot of..

JERSEY, GUERNSEY and DEVON CATTLE

FOR SALE.

BERKSHIRE pigs from registered sows, by boars direct from imported stock.

Barred Plymouth Rock, Brown Leghorn and Indian Game chickens now ready Also Bronze Turkeys.

M. B. ROWE & CO. Fredericksburg, Va.



FOR SALE

A few highly bred, beautifully marked, one year old registered

Jersey Bulls and Heifers $30. Each.

T. P. BRASWELL, Battleboro, N. C

THOMPSON & TRIMBLE,
SWOOPE, AUGUSTA CO., VA.

Breeders ..of.. **Shorthorn Cattle and Shropshire Sheep.**

...CORRESPONDENCE SOLICITED

FOR SALE—Two Pure

Holstein Heifers

2½ years old, to calve in two months. Two bulls 3 and 7 months old. Reasonable price. T. A. HARDING, Massaponax, Spottsylvania Co., Va

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

..ESTABLISHED 1856..

The HAYFIELDS HERD of HEREFORDS

FOR SALE—Four Bulls from Six to Ten Months Old.

WM. D. MERRYMAN, - - Cockeysville, Md.

ESSEX PIGS

From best registered stock $10 per pair. 6 to 10 weeks old. Also a few choice ram Lambs, pure Southdown, $8 to $10 each; $.0 for choicest lambs. Your orders solicited.

L. G. JONES, Bethania N. C.

A DEVON HERD..

Thoroughbred and a few grades, in good condition, about 10 head.

Cheap, if sold this month.

Come and see them

M. B. ROWE & CO, Fredericksburg, Va.

Berkshire Pigs

FOR SALE

Entitled to registry. Both sexes. $3.50 per head.

W. ELLIOT HAMMOND, Mansfield Farm, Goochland C. H., Va.

BERKSHIRES

All ages—most of them young. From registered stock and are choice animals.

D. O. NOURSE, Agriculturist, . . . Blacksburg, Va.

GENERAL DOUGLAS AND THE FEARLESS COWARD.

General Henry Kyd Douglas, soldier, jurist, statesman and social lion, added to his long and interesting career of versatility last summer by winning great applause and golden comments at a fashionable cake walk given at one of the Northern resorts. There is very little that General Douglas cannot do. He was the Chief of Staff under Stonewall Jackson, and learned the art of war from that great general. He was called one of the most fearless and dashing riders in the whole Southern army.

Among the stories he tells of his army experience is that of the bravest man he ever knew. He saw a young fellow start to run, then halt, and go forward marching into what seemed to be the very jaws of death. He expected as a matter of course that he would be killed and gave no thought to him until after the battle. Riding over the field he recognized the rash youth. He asked him what had impelled him to do such a brave thing. The reply, after some hesitation, was as follows:

"Well, Colonel, it was just this way. I am the worst coward on earth, and I started to run, and I intended to keep on running till I got home, but all of a sudden the face of a little girl rose before me, and when I saw her eyes I knew I just had to fight, and then I waded in and did my best.—*The Saturday Evening Post.*

BLACK LANGSHANS.

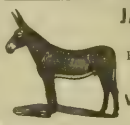
M. A. Olney, Coleman's Falls, Va., has some choice birds of above breed for sale. See adv.

If, when making gingerbread, molasses cookies, or ginger snaps, the molasses, soda, butter and ginger are cooked together until the mixture just escapes candying, and then cooled before adding the egg and flour, the result will be much more delicate and satisfactory.

Wanted--A Gaited Saddle Mare

That can also trot in harness

PERCIVAL HICKS, Shell, Mathews Co., Va.



JACKS and JENNETS FOR SALE.

FINE JACKS a specialty. Write for what you want. Address

W. E. KNIGHT & CO.
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SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
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FEEDS AND FEEDING, -	$2.00
TOBACCO: How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND, VA.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

THE CAMBRIDGE ROLLER.

The Cambridge Corrugated Land-Roller and Pulverizer is advertised in this issue by R. F. Harris & Son, Charlottesville, Va. Write them for prices.

THE RIGHT THING TO DO.

The sermon was on the downward path of a sinner, and the clergyman used the illustrations of a ship drifting on the rocks. A jack tar who had strolled in became deeply interested. "The waves dashed over her!" exclaimed the minister. "Her sails are split! Her yards are gone! Her masts are shivered! Her helm is useless! She is drifting ashore! There is no hope! What can save her now?" "Let go the anchor, ye lubber!" yelled the excited seaman. He meant well, but they ran him in for brawling all the same. —*London Spare Moments.*

AWARDED A GOLD MEDAL

The well known seed growers and merchants, Messrs. T. W. Wood & Son, of Richmond, Va., have been awarded a gold medal at the Paris Exposition, this year, for their splendid exhibit of seeds at the Exposition.

The award was unquestionably well merited, for no seed house stands higher in reputation in this country for its seeds than Messrs. T. W. Wood & Sons of Richmond, Va.—*The Journal, Newbern, N. C.*

THE NEED OF THE YOUNG AMERICAN.

A college education as we see it to-day is not enough to insure a good citizen. Something more is required. This something is unselfish patriotism. But cannot this be made one of the results of education? Certainly it should be. If the State educates men it should educate them loyally to conserve her own interests. The movement to teach patriotism in our common schools is a good one. Care must be taken however that the right sort of patriotism be taught. The young American must not come to believe that patriotism consists solely in the risking of life to repel invaders. He must be taught that it consists no less in guarding the interests of the State in time of peace. That it consists not so much in physical courage as in unselfishness and honesty.—Leonidas Hubbard, Jr., in *The Saturday Evening Post.*

The first piece of gold discovered in the United States was found in Cabarras county, N. C., in 1799. It was picked up by a boy named Conrad Reed on the bank of a creek near his father's farm one Sunday afternoon. It attracted his attention while wading, and he picked it up and carried it home to his mother, who used it as a weight to keep her kitchen door open. In 1802, it was pronounced gold by a jeweller of Fayetteville, who happened to be at the house. He took it home, melted it into a bar eight inches long, and sold it for $850.

URY STOCK FARM.

Thos. Fassitt & Sons, Sylmar, Md., the proprietor of "Ury," are offering some richly-bred Holstein-Friesian cattle.

BILTMORE FARMS,
BILTMORE, N. C.

HEADQUARTERS for the best native and imported strains of

A. J. C. C. JERSEYS, Large ENGLISH BERKSHIRES and STANDARD POULTRY.

We exhibited at five State Fairs in the fall of 1899, and made a record that has never been approached by any other breeding establishment.

The BILTMORE JERSEYS won 32 Sweepstakes, 5 First Herd Prizes, 3 Second Herd Prizes, 44 Individual First Prizes, 25 Seconds and 6 Thirds.

BILTMORE BERKSHIRES won 18 Sweepstakes, 119 First Prizes, 90 Seconds, and 16 Thirds.

The BILTMORE POULTRY, won over 500 prizes, and more firsts and seconds on each and every variety we breed, than all our competitors combined.

Send Quick for special price-lists of Berkshires and Poultry, good for one month.

APPLY TO GEO. F. WESTON, SUPT.

JERSEYS For Sale

2 BULLS fit for light service. Sired by Admiral St. Lambert, whose dam, Flower of Meridale, has a record of 53 lbs of milk per day, and 26 lbs. 11½ oz. of butter in 7 dams. The dams of the young bulls have butter records of 18 lbs. 8 oz., and 17 lbs. 4 oz. in 7 days.

Also some **FINE HEIFERS,** sired by Ethels John Bull, and in calf to Admiral St. Lambert, and bred from cows that milk 5 gallons per day. Prices reasonable.

BOWMONT FARMS, SALEM, VA.

GASTON STOCK FARM.

Holstein-Friesian & Jersey Cattle.

Having selected my foundation stock from the best I can offer animals of each breed of highest breeding and individual merit, at moderate prices, containing the blood of the best families, and bred with great care

I am prepared to sell HOLSTEIN BULLS, and BULL CALVES and JERSEYS of either sex.

JNO. U. DETRICK, Somerset, Va.

PIGS

Some of the best bred in the United States at farmers' prices.

ARROWHEAD STOCK FARM, Charlottesville, Va.

S. B. WOODS, PROPRIETOR.

MAGAZINES.

The November *Century*, beginning the magazine's thirty first year, is the first of two numbers especially noteworthy, not only for the interest of their contents, but for the beauty and abundance of their illustrations. The rich effects of color printing are seen in the pictures illustrating an outdoor paper by Maurice Thompson, in which the reader is transported to the shores of the Gulf of Mexico, and in three full-page reproductions of the work of "A New Sculptor," Hendrick Christian Andersen. But while the eye will be caught first by the pictorial features of the number, its appeal to the mind is no less strong; for with November the *Century* begins a Year of Romance, in the course of which it will present a remarkable number of short stories by famous writers, with several longer ones, and two or three serials running through six months or more. In the present issue appear the opening chapters of "Her Mountain Lover," a novelette by Hamlin Garland, in which a typical Western American, racy of the soil, unschooled except in the craft of the plains and mountains, full of humor and good humor, is sent to London to float the stocks of a mine. His social adventures there, and the story of his two affairs of the heart, foreign and domestic, with the contrasts of wild Western and old English backgrounds, make the tale peculiarly picturesque and suggestive. In the same number are short stories by Frank R. Stockton, in which those old favorites, "Pomona" and "Jonas," tell a story; by David Gray, "Her First Horse Show," in the manner of the author's "Gallops;" by Charles Dudley Warner, a sketch of a dog ("The Education of Sam,") in the style of his cat story of "Calvin;" by Arthur Colton, author of "The Romance of the Institute," a strong story, entitled "Tioba;" and by Geo. S. Hays, an American missionary, who tells a tale of China, "The Peril of Fan Way Chin."

Apart from fiction, the number is rich in matters of interest, such as the beginning of a group of papers on Daniel Webster, by John Bach McMaster, the historian, richly illustrated with portraits, etc.; the second of Bishop Potter's timely articles on the Far East, this one being on the Philippines;" "A Yankee Correspondent in South Africa," by Julian Ralph; "Our Schools for the Stage," a picturesque and plain-spoken paper by the veteran dramatist, Bronson Howard, with piquant illustrations, and a richly pictured paper on "The New York Zoological Park," by its Director, Dr. W. T. Hornaday. In Topics of the Time announcement is made of the winners of the *Century* prizes for the best story and essay, by American College graduates of not more than one year's standing. An editorial on "Voting" protests against boss-made nominations; and "In Lighter Vein" contains some examples of the illustrative work of the French artist, Vallotton, forerunner of the Englishman, Nicholson.

Of the twelve articles which make up the November *Forum*, the leading two by Charles Dick and Charles A. Towne, namely, "Why the Republicans should be Endorsed," and "Reasons for Demo-

C. C. Taliaferro,
NASONS,
VA.

"MOUNT SHARON" HEREFORD CATTLE
STOCK FARM.
Registered SHROPSHIRE SHEEP
Registered POLAND-CHINA PIGS.
Reg. and Grade BRONZE TURKEYS and MUSCOVY DUCKS





NOW OFFERS FOR SALE

HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

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POLAND-CHINA HOGS.—Pigs, six weeks old, $4 50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

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ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

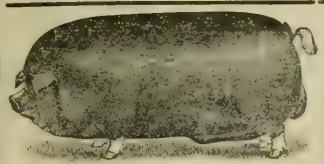
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cratic Success," will undoubtedly be taken up for first reading on account of the impending election. Mr. Dick presents a very strong case for the Republican party by contrasting the various achievements of that party during its many tenures of office, and the almost invariable prosperity which has attended Republican administrations, with the changes and uncertainty in business and conditions which seems to have been the companions of the Democratic party when in office. Mr. Towne bases his argument chiefly upon the questions of Money, Trusts, and Imperialism, so familiar to everybody now in campaign speeches. Fittingly enough, Mr. George E. Roberts, the Director of the United States Mint, follows these two gentlemen with an article, "Can there be a Good Trust?" He analyzes the constitution and effect of Trusts, and shows that it is impossible to prevent the masses from sharing in the advantages brought on by large combinations of capital and the gains of industrial progress. "The Next Pan-American Conference" is the title of an article by Hon. Williams C. Fox, Chief Clerk of the Bureau of American Republics; and Mr. H. W. Wiley, Chief Chemist of the Bureau of Chemistry, Department of Agriculture, has a most interesting excursus on Bread and Bread-making which are novel and surprising. Mr. A. Maurice Low discusses the question of mounted infantry; Sir Robert Stout, Chief Justice of New Zealand, compares the constitutions of the United States and the New Australian Federation; and the Revival and Reaction in Iron is commented on by Mr. Archer Brown. Major Arthur Griffiths describes the English Intelligence Department; Mr. Llewellyn James Davies considers the present Taming of the Dragon, that is China; Mr Budgett Meakin writes of Yesterday and To-day in Morocco; and the 500 h anniversary of the death of Geoffry Chaucer calls forth a very appreciative and interesting essay from Mr. Ferris Greenslet.

The *New Lippincott* Magazine for November opens, as usual, with a Complete Novel. The one presented this month maintains the always high standard. It possesses the charm of uncommon scene and qaint characterization. It is entitled "Madame Noel," and the author is Geo. H. Picard, who is especially liked for his books "A Mission Flower" and "A Matter of Taste." Madame Noel's house hold in the little town of Assumpsit, in Longfellow's Acadia, is composed of her son, who is a Catholic priest; her niece, Euphemie, a girl who is a rare combination of constancy and coquetry; and a young man ward who quarrels with his destiny as planned by Madame Noel yet fulfils his real one in a way which is so skilfully sprung on the reader that it finds him unsuspecting. Neighbors of Madame Noel's, an English rector and his interesting son and daughter, enlist sympathy at the start by a glimpse of their past. The rector came to Assumpsit to establish a mission. He had married the only child of the one great man of the region. Their happiness was short lived, as, after the birth of a third child his wife lost her reason, and news came to the rec or that

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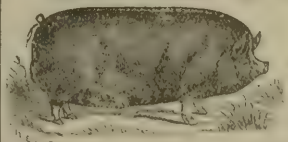
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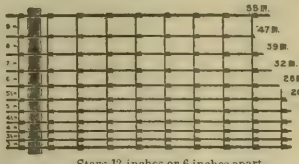
the had thrown herself and her baby into the river. The tragedy was the beginning of a friendship between the priest and the rector which grew with passing years notwithstanding opposing creeds. But the story has chiefly to do with the lives and loves of the four young people, and is one of strong human feeling.

The shorter fiction of the November *New Lippincott* is plentiful and varied in theme. "The Beat that Failed" is by Albert Payson Terhune, who, by the way, is a son of "Marion Harland." It is a newspaper story beginning just at the hour of going to press; and the incident related is most exciting and realistic. Stewart Edward White contributes a tale called "The Race," which in his own words, is "blood and-thundery, but true." But it has a tender side to it. Glinton Scollard shows he is an adept in prose as well as verse by a clever sketch called "The Passing of a Poet," a study in cavalier times.

The November number of the *Review of Reviews* marks the culmination of the Presidential campaign of 1900. Its various departments—"The Progress of the World," "Record of Current Events," "Cartoons," and "Leading Articles of the Month"—summarize the things worth remembering in connection with the political contests of the year in the United States, Canada, and Great Britain, while contributed articles describe in detail the campaign methods employed in Chicago, New York and London, and the rudimentary party organizations of Porto Rico. Its editorial treatment of current politics has given the *Review* a unique distinction among American magazines.

The readers of *St. Nicholas* will be glad to find in the November number, beginning a new year, the opening pages of an American serial by John Bennett, author of that popular Shakesperian story, "Master Skylark." It is called "The Story of Barnaby Lee," and is a tale of the transition from Dutch to English dominance in the city of New York nearly two and a half centuries ago. Another new serial is "A Frigate s Namesake"—a girl whose Christian name is Essex—by Alice B. Abbot, with pictures by George Varian, who is widely known by his illustrations of sea fights, especially those of the Spanish war. Short stories in this number are "Sergeant McTigue's Twins," by Lieut. Charles Dudley Rhodes, U. S. A.; An Angel Unawares," by J. L. Harbour; "The Story of Three Dogs," by Mary Dameron, and "How the Shoes Fitted the Baby," by Sophie Swett. Benjamin E. Smith describes, with illustrations, the mechanism of the chariot-race in the stage performance of "Ben Hur." "A Baker's Dozen of Wild Beasts" are rounded up by Carolyn Wells, aided by Fanny Cory, in several pages of verse and pictures, among them being such terrifying creatures as the Bath Bunny, the Wine-Jelly-Fish, the Mince-Python, etc. The "Yoshien" of which Anna Benjamin writes is nothing stranger than a Japanese kindergarten. Mrs. Joseph Pennell tells how children behaved four centuries ago, and Edward F. Bigelow, in Nature

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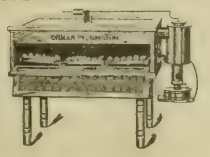
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and Science, tells how young foxes behave to-day, and how the dodder robs the golden rod; and the doings of wolves, birds, and insects are described in illustrated letters "From Sharp-Eyed Girls and Boys." Pictures, poems, and useful hints to readers abound.

"The Loveliest Woman in All America," "The Future of the White House," "The Man Who Wrote Narcissus," "Waiting for the Mail"—a page drawing by A. B. Frost—and "How Aunt Sally Brought Down the House," a short story, are some of the excellent features of the November *Ladies' Home Journal*. In the same issue Clifford Howard continues "The Story of a Young Man," Charles Major his "Blue River Bear Stories," Elizabeth Stuart Phelps her serial, "The Successors of Mary the First," and "Josiah Allen's Wife," funnily narrates the incidents of her fourth visit. Edward Bok forcibly contends that the Americans show execrable taste in furnishing their houses, and "An American Mother" convicts the Americans of having bad manners. Plans are given for "A Quaint, Old-Fashioned House for $6000," and interior views of "The Most Artistic House in New York City" "right worthily occupy two pages, as does "Through Picturesque America," which pictures the scenic beauties of California. There are numerous articles on the fashions, and woman's work. By The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

The Saturday Evening Post, published by The Curtis Publishing Company, of Philadelphia, is making great strides in securing popular approval. It is practically a magazine published weekly, and has on its staff and as contributors some of the ablest writers in the country.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Experiment Station Record, Vol. XII, No. 2.

Report No. 66. Sheep and Wool. A Review of the Progress of American Sheep Husbandry.

Division of Forestry. Bulletin 28. A Short Account of the Big Trees of California,

Section of Foreign Markets. Bulletin 20. Agricultural Exports of the United States, 1898–1899.

Progress of Agriculture in the United States.

Progress of Economic and Scientific Agrostology.

Succulent Forage for the Farm and Dairy.

Division of Agrostology. Circular 25. Turkestan Alfalfa.

Division of Biological Survey, Circular 31. Information Concerning Game, Season, Shipment, and Sale.

Division of Botany. Circular 18 Revised. Crimson Clover Seed.

Division of Entomology. Circular 41. Regulation of Foreign Governments Regarding Importation of American Plant Trees and Fruits.



* VIRGINIA DIVISION. *

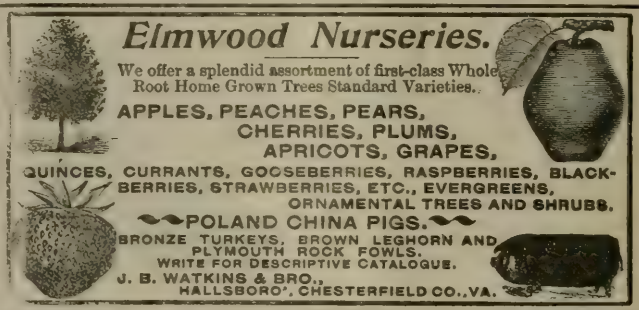
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..AGENTS WANTED..

FRANKLIN DAVIS NURSERY CO., Baltimore. Md.

Division of Statistics. Circular 13. List of Free Employment Agencies for the Use of Farmers.

Crop Reporter. October, 1900.

Alabama Experiment Station, Auburn, Ala. Bulletin 109. Strawberries.

Colorado Experiment Station, Fort Collins, Col. Bulletin 58. A Soil Study. The Crop Grown Sugar Beet.

Cornell Experiment Station, Ithaca, N. Y. Bulletin 183 Sugar Beet Pulp as Food for Cows.

Delaware Experiment Station, Newark, D. Bulletin 48. Top working Apple Trees.

Bulletin 47. Common Diseases of Fowls. Their Control and Treatment.

Kentucky Experiment Station, Lexington, Ky. Bulletin 88. Commercial Fertilizers.

Bulletin 89. Wheat.

Louisiana State Board of Agriculture, Baton Rouge, La. Crop Report June, July, and August, 1900.

Louisiana (North) Experiment Station, Baton Rouge, La. Bulletin 62. Report of Results for 1899 at Calhoun, La.

Maine Experiment Station, Orono, Me. Bulletin 67. Digestion Experiments with Sheep.

Bulletin 68. Experiments with Insecticides upon Potatoes.

Maryland Experiment Station, College Park, Md. Thirteenth Annual Report.

New Mexico Experiment Station, Mesilla Park, N. M. Bulletin 34. Principles of Water Analysis.

Rhode Island Experiment Station, Kingston, R. I. Bulle in 71. Experiment in top dressing grass land.

Virginia Weather Bureau, Richmond, Va. Report for September, 1900.

West Virginia Experiment Station Morgantown, W. Va. Bulletin 67. The Hessian fly in West Virginia and How to Prevent Losses From its Ravages.

CENSUS BULLETINS.

CENSUS OFFICE, WASHINGTON, D. C.

Bulletin No. 4—Population of New Hampshire.

Bulletin No. 5—Population of Alabama

Bulletin No. 6—Population of Arizona.

Bulletin No. 7—Population of Arkansas.

Bulletin No. 8 –Population of Delaware and the District of Columbia.

Bulletin No, 9—Population of Connecticut.

Bulletin No. 10—Population of California.

There was a quaint old book of riddles published during the reign of Queen Elizabeth which contained the following conundrum:

"He went to the wood and caught it,
He sate him down and sought it,
Because he could not find it,
Home with him he brought it."

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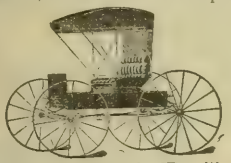
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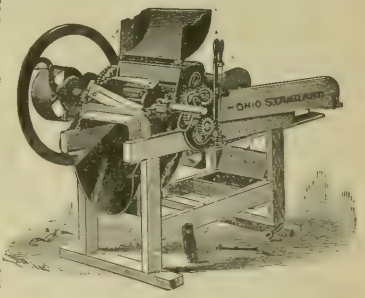
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Soiling Crops and the Silo. How to cultivate and harvest the crops; how to build and fill a silo, and how to use ensilage. By Thomas Shaw, Professor of Animal Husbandry at the University of Minnesota. Illustrated, 12mo, pp 364, cloth. Published by Orange Judd Company, New York. Price, $1.50.

This new book by Prof. Thomas Shaw forms a most appropriate companion to his Forage Crops, published last year. It is by far the most original and complete work ever written on the subject of which it treats. The book is divided into two parts, the first of which treats of the growing and feeding of all kinds of soiling crops that have been found useful in any part of the United States or Canada. The discussion is simple, clear and eminently practical. It treats of the climatic and soil conditions to which all these crops are adapted, of their plan in rotation of preparing the land for each crop and of sowing, cultivating and feeding the same.

The second part discusses the silo. No treatise on the subject has ever appeared that will approach in simplicity and comprehensiveness the way in which it has been handled by the author. It is not a plea for the silo, as nearly all the publications have been that have heretofore appeared on the subject, but a sensible discussion of the place for the silo, the benefits from soiling crops, the best methods of building the silo, the crops that are suitable for soiling, filling the silo and feeding the silage. No progressive farmer can afford to be without this book and to dairymen it will prove of highest value

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CATALOGUES.

James Vicks' Sons, Rochester, N. Y. Catalogue of Bulbs, Plants, and Seeds Autumn, 1900.

Ivanhoe Poultry Yards, Henrico Co., Va., Breeders of Barred Plymouth Rocks. Address Box 258, Richmond.

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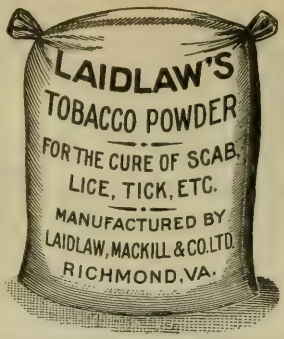
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Price, 10c. per lb.

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Nicotine dips are fast gaining in favor with the farmer and are coming to be recognized as the only really effective eradicators of vermin on all stock.

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REFERENCES.—Mr. A. B. Gwathmey, Cotton Exchange, New York; Mr. W. N. Wilmer, of Wilmer & Canfield, lawyers, 48 Wall St., New York; Mr. H. A. Buck, Editor Spirit of the Times, New York; Col. K. M. Murchison, Banker, Wilmington, N. C.; Mr. L. Banks Holt, Proprietor Oneida Cotton Mills and Alamance Farm. Graham, N. C., Col. B Cameron, Proprietor Fairntosh Stud Farm, Stagville. N. C.; Maj. P. P. Johnston, President National Trotting Association, Lexington, Ky,; Mr. Thomas N. Carter, President Metropolitan Bank, Richmond, Va.; Mr. Jas Cox, Proprietor Belgravia Stock Farm, Mt. Jackson, Va.; Capt. John L. Roper, Norfolk, Va.

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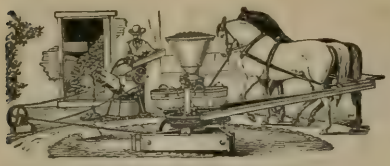
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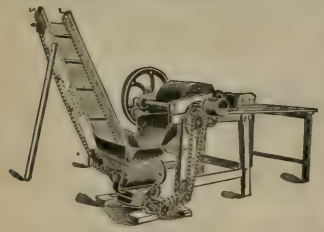
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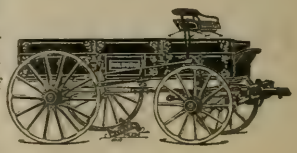
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Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
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St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harper's "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 35
Cosmopolitan "	1 00	1 25
Munsey "	1 00	1 35
Strand "	1 25	1 65
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SOUTHERN INDUSTRIAL CONVENTION.

There will meet in New Orleans, Dec. 4, to continue in session until Dec. 9, the Southern Industrial Convention, at which there will be present representatives from all parts of the South. The aim and purpose of the convention is to discuss industrial matters and the best way of bringing to the attention of the country and the world the resources of the South and the splendid opportunities they offer to labor and capital. The convention in New Orleans will be the third meeting that has been held. Both the previous ones have accomplished much good, and the movement has grown steadily with time. It has attracted the attention of the Northern press, which, as a matter of fact, is giving it more consideration than are the papers of the South.

TOBACCO CULTURE

Is the title of a neat pamphlet just issued by the German Kali Works, 93 Nassau St., New York City. This publication treats quite fully about Tobacco growing, from the time of sowing seed to the marketing of the crop. It is a valuable publication, and will be sent without charge to any planter who applies for it. Say you saw this notice in the *Southern Planter*.

THE YOUTH'S COMPANION IN 1901.

The ends of the earth will be laid under tribute for the 1901 volume of *The Youth's Companion*. Statesmen, Diplomats, Travellers, Trappers, Indian Fighters, Cow-Punchers and Self-Made Men and Women of Many Vocations will contribute to the entertainment of young and old in *Companion* homes. Theodore Roosevelt will write upon "The Essence of Heroism." The Secretary of the Treasury will answer the question, "What is Money?" Frank T. Bullen, the old sailor who spins facinating yarns of life at sea, will contribute a story. W. D. Howells will describe the relations between "Young Contributors and Editors." Paul Leicester Ford will write about "The Man of the Dictionary"—Noah Webster. There is not space here to begin to tell of the good things already provided for readers of the new volume of *The Youth's Companion*—interesting, instructive, inspiring—from the pens of famous men and women

Illustrated Announcement of the 1901 volume and sample copies of the paper sent free to any address.

All new subscribers who send in their subscriptions now will receive not only the 52 issues of *The Companion* for 1901, but also all the issues for the remaining weeks of 1900 free from the time of subscription, besides the beautiful "Puritan Girl" Calendar for 1901, lithographed in 12 colors and gold.—*The Youth's Companion, Boston, Mass.*

"AMERICAN" FIELD AND HOG FENCES.

The widespread introduction of woven wire fence for farms in the place of the once popular barb wire, is one of the leading features of the progress in farm care and management.

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1.000 tons Finest Timothy Hay, per hundred	80
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25 barrels Large Mackerel, each weighing 16 oz	05
10,000 Sugar-Cured Bacon Sides	09
10,000 bushels Finest Feed Oats	35
3,000 bushels Fine Clover Seed	4 75
Finest Family Laundry Soap, 10 bars	30
600 barrels Fine Rock Lime, per bbl	1 15
87,000 lbs. Rock Salt for your stock. Every farmer should keep 8 to 10 large lumps of salt in the stalls of his stock. It costs only one cent per lb.	
800 barrels Finest Byrd Island Family Flour	4 50

This flour is made from wheat grown in the garden spot of the South, "Valley of Virginia." It makes 40 lbs. more bread than any other flour made, keeps moist, and has a fine flavor. Order a barrel when in need.

487 bushels Choice Timothy Seed, bushel	2 30
1,500 bushels Finest Rye, per bushel	68
Gibson's Old Rye Whiskey, per quart	75
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Either of these brands are sure cure for dyspepsia, consumption or lung trouble.

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Clemmer's Old Rye Whiskey, per quart	40
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Dozens of fences and devices have fallen by the wayside, which because they were unpractical and insufficient in some point have to some extent retarded the general popularity of woven wire for fencing purposes; but it has now come to be generally acknowledged that the woven wire fence, made of proper steel wire, of proper hardness, properly galvanized, is the best fence for all-round farm fencing purposes.

"The American Field and Hog Fence," advertised elsewhere in this issue, we are informed marketed several millions of rods during the last twelve months. The manufacturers guarantee every rod to be perfect, and this guarantee is valuable because the manufacturers have practically unlimited capital with which to back the guarantee. They claim for it the following points of superiority: Special selected steel stock of their own manufacture; special galvanizing, with zinc of their own production especially for this purpose; simplicity of construction, with ample provision for expansion and contraction; hinged joint at every intersection of the horizontal wires with perpendicular stays, which prevents bending when subjected to strain—and all the above in combination, securing a fence at once cheap, durable, strong and efficient.

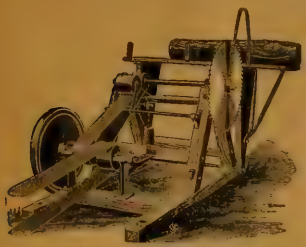
American fences are sold by local agents, of which nearly 15,000 are located in the various cities and towns of the United States and Canada. Any of our readers unable to find an agent in their town will do well to write for catalogue and particulars to the American Steel and Wire Co., at Chicago or New York.

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Implements and Machinery



Combined Mill and Power.
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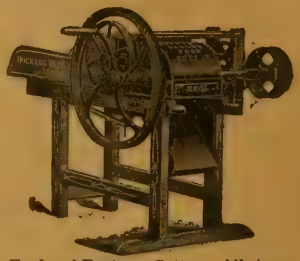
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For horse or steam power.

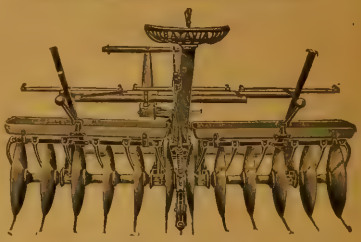
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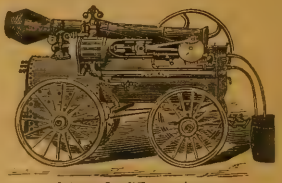
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THE SOUTHERN PLANTER PUBLISHING COMPANY, - - - - - Proprietors.

J. F. JACKSON, Editor and General Manager.

Vol. 61. DECEMBER, 1900. No. 12.

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Agriculture is the nursing mother of the Arts.--XENOPHON.
Tillage and pasturage are the two breasts of the State.--SULLY.

61st Year. Richmond, December, 1900. No. 12.

Farm Management.

WORK FOR THE MONTH.

With this issue we complete not only the volume for the year, but the volumes for the century—and what a century the nineteenth has been! In the arts and sciences, in manufacturing and agricultural discovery and progress, it has been more than the equal of all the centuries which have preceded it since the foundation of the world. More has been accomplished in the century now closing to bring about the happiness, comfort and well-being of mankind than in all the ages of the past. It is not too much to say that to-day it is possible for even the poorest classes in all civilized countries to enjoy more of the comforts, pleasures and luxuries of life than the proudest and greatest monarch in the world could command or enjoy in the middle ages, or than even the rich could enjoy at the commencement of the century. What progress the science of agriculture has made in the century! At the close of the last century, and well on into the nineteenth, the scientific truths of agricultural chemistry and the laws of crop-feeding and production were absolutely unknown. Farmers worked in the dark. They committed the seed to the ground, and knew nothing of the laws governing growth and plant-food assimilation, and practically nothing of the food requirements of crops. The land was worked by implements of the most crude design, and ill adapted for the purposes intended. Brawn, not brain, was the factor relied on to win success, and if it came with this help, it came largely by chance, and was not the outcome of means adapted to an end. The scientific laws governing live-stock breeding had barely been attempted to be mastered, and the domestic animals were largely but little removed in fitness or adaptability from their wild ancestors. The outcome of all this advancement has been a higher standard of life, and a more perfect opportunity for the enjoyment of the benefits which a beneficent Creator has designed for all created beings, and ought to result in a profound sense of thankfulness to the Giver of all.

We in this land have been favored with unexampled prosperity in every branch of trade during the year now fast drawing to a close, and farmers, notwithstanding the fact that a partial drouth has somewhat reduced the yield of our staple crops, have largely participated in that prosperity. The demand for all the products of the farm has been large, and this at prices higher than at any period in the last seven years except in the case of one or two staples. The demand for labor has been greater than ever before, and wages have been higher. The result is seen in the more vigorous efforts being made all over the South to develop our great resources. All this must result in a higher degree of prosperity for farmers, but to make this to be completely availed of farmers must adapt themselves to modern systems of farming and get out of the ruts of the past. They must become reading and thinking men—not mere machines—much more largely than they ever have been in the past. Whilst it is now too late in the year

to do much in the way of actual work, it is not too late to make a start in this new departure which is called for, and we urge that each one who reads this will determine that he, for one, will make the effort. The next century will mark even a greater advance than the one now closing, but only he who avails himself of its opportunities will receive his full share of the rewards.

The year has closed with one of the finest and most genial of falls, and the result is seen on every hand. Progress has been made beyond expectation in seeding fall crops, and the wheat and winter oats, of which a larger acreage has been seeded than for many years in the South, are looking splendid. Whilst it is now too late to seed any crop, it is not too late to plow and prepare the land. Keep the teams at work breaking the land intended to be put in crop in the spring as long as the weather keeps open and the land is in good plowing condition. Much more work can be done in the same time now than at any other period of the year, and with less injury to both team and hands. Do not be afraid to bring up some of the subsoil. The winter will aerate this, and fit it to become available as plant food. Set the furrow slice on edge, so that the subsoil and surface soil will, in working the land, become thoroughly mixed. If possible, subsoil the plowed land, especially so where the bottom of the furrow is practically a hard pan. The benefit of this will be seen in the next year's crop. It will certainly prevent washing of the land, and will secure a reserve of moisture for the needs of the crop in the hot, dry weather of July and August, when crops most need this help. We have had a number of reports from farmers who subsoiled last year, who, one and all, thereby secured a good corn crop this year, notwithstanding the drouth.

If your land needs lime, and there is very little land in the South that would not be improved by its application, this is the best time of the year to apply it. Apply at the rate of 25 to 50 bushels to the acre broadcast, after plowing the land, and run the harrow over after spreading to mix it with the surface soil. In the further working of the land in spring it will become thoroughly incorporated and will make available a large part of the inert plant food. We believe, and our belief is founded on practical experience, that much outlay for fertilizers might be saved by the use of lime and much more permanent improvement be secured.

Get out all manure from the stables, yards and pens as made, so long as the weather will permit of hauling on the land. The best place to put this freshly-made dung is on the grass land intended to be broken for corn. Spread the dung as hauled out and thus secure equal benefit all over the field.

Land which has not been under crop, and which it is desired to crop next year, should now be cleaned up. In doing this work do what you do thoroughly. Do not leave stumps and rocks standing in the field, but pull them out or blast them out with dynamite. Left in the field, they are only hindrances to cultivation and prolific sources of broken implements and tools, besides affording harboring places for weeds and fungous diseases. The rocks should be gathered off and be put on the roads, especially the road from the house and barn to the highway. Break them small and spread them the width of the road desired, making the centre a little higher than the sides. Spread over the stones a light coating of gravel or dry sandy soil, and roll thoroughly after a rain. This will consolidate the work and make a road which will last for years. Plow out a good furrow on each side of the road bed to take the water, and see that this is let off at frequent points so as to keep the road bed dry. Water is more destructive to a road than traffic over it.

The work of making and repairing fences should be attended to. Wherever a fence can be dispensed with do not hesitate to clean it away, and thereby save cost in repairs and renewal. By a judicious straightening of crooked fences and rearrangement of fields much cost may often be saved. Do not, however, attempt to save by dispensing with good outside boundary fences. No man can properly utilize his land when unfenced from his neighbor's land or from the highway. His crops are always in danger and his stock liable to be infected with disease. Fix gates into the fields and do away with bars, which are always a source of trouble. A gate is easily made, and when once made and properly hung, will swing for years.

The work of draining all wet places should now be attended to. It is impossible to grow profitable crops on land saturated with water. See that you obtain a good outfall for the main drain, and then let the subsidiary drains empty into this main with sufficient fall to keep the mouths always open. The mistake usually made in draining a piece of wet land is in not putting down the drains deep enough. It is the underlying water which does the mischief not that which falls on the surface. Get this underlying water off and the water falling on the surface will soon get away. Three feet is little enough to go down, and the drains should not be more than five or six yards apart to thoroughly and quickly drain the land. In draining a hillside do not make the drains to run round the hillside, but

straight up and down the hill. A drain running round a hill will only catch water from the upper side, whilst one running up and down will draw from both sides.

See that you have an abundance of feed put into the barns and sheds, convenient for feeding the stock, so that if stormy weather comes on or your hands should take leave to enjoy a long Christmas, you will not be placed in a serious difficulty to keep your stock comfortable and improving.

See also that the wood-shed and wood-pile is amply stored with plenty of good, dry seasoned wood. This may save much unpleasantness in the house, and will certainly secure much comfort if the weather turns cold.

Let the ice-pond be thoroughly cleaned out before impounding the water to be frozen to fill the ice house, and see that all sources of pollution of the water are cut off. Freezing water does not purify it. Ice made from impure water is no more fit to be used than impure water is safe to be drunk. In this issue and our last one will be found information as to the building of the ice-house. If already built, see that it is made clean and thoroughly repaired before storing the crop, and have on hand plenty of saw-dust for packing the ice.

Have all tools and implements not in use put under cover, and let them be cleaned and greased where needed. A coat of paint should be applied to all the parts not running in the soil. This will make them last years longer. Farmers are usually most careless of valuable implements, and here throw away much money which they might save.

Make preparation to enjoy Christmas. It is the one season of the year which all Christian people everywhere observe and no one has a better right to enjoy it than the farmer, who provides so much of that good cheer which enables the rest of mankind to be happy. Gather your families and friends around you, and let all enjoy some of the best of the products of the farm.

Southern planters are far behind those of the Northwest on tobacco culture. In Wisconsin planting and cultivating are done by machinery altogether, at a great saving of labor and expense, and many tobacco planters are wealthy, on an average of seven cents per pound for the weed, which averages over 1600 pounds to the acre, and sometimes runs over 2000, as they say; they estimate crops like hay, at so many tons.

ROTATION OF CROPS.

This is a subject to which we desire to invite the attention of farmers during the winter months when they are deciding as to the crops to be grown next season. We are the more impelled to this course by the almost daily receipt of letters from readers of the *Planter* all over the South asking when to plow and how to cultivate and fertilize lands which have grown corn or cotton this year, so as to enable them to secure good and profitable crops of the same kind again next year. Now, this system, or rather want of system of growing crops, is not farming; it is planting, and planting of that ruinous character which has made of the South almost a desert in many sections, and of the planters nearly all poor men. There is no method of so using land, even though supplemented with heavy fertilization, which will not in the long run ruin the land for crop production and make of its owner a poor man. It is contrary to all the laws of nature and science. In the natural forest the pine follows the oak and the oak the pine. With a proper system of rotation of crops, land can never become "worn out." One crop draws heavily on one element of food, whilst another draws heavily upon another. One crop feeds the land; another feeds on it. One crop is a surface feeder, whilst another seeks its food in the depths of the soil. With a proper rotation of crops. the mechanical condition of the soil can be constantly improved, whilst neither insect pests nor fungous diseases can withstand the constant change of conditions of feeding and life which such a rotation necessarily involves. Weeds also can never become permanently injurious or destructive of crops when crops are rotated. Rotation means diversity of crops, and diversity of crops means a much safer system of farming. Where everything is staked on one crop, and that fails, ruin stares the farmer in the face. Diversity of crops means live stock production and development in order to find means for the consumption of the by-products of the crops and of such crops as are not easily marketable until put into a condensed form. The keeping of stock means the making of manure, and this means the enhancement of the fertility of the land and its permanent improvement. Rotation of crops means further, the spreading out of the work of the farm over the whole year, and thus the possibility of the saving of larger crops with less outlay for outside labor. Give this subject consideration, and so plan for the cropping of the farm next year as to start a system of rotation which shall bring fertility to the farm and profit to yourselves. Be farmers, not planters.

Mention the *Planter* to your friends.

GRASSES FOR THE SOUTH.

Editor Southern Planter:

The old fashioned grasses have, of late years, become so very uncertain that farmers will have to try something new.

Large sums are spent annually trying to get a stand only to find our meadows taken by white top weeds, broomsedge, long leaf plantain, and other kinds of trash.

Now, what is most needed is a grass which is not easily choked out by weeds and trash; and I am of the opinion from what I have heard that Johnson and Brome grasses are the varieties for Virginia farmers I am anxious to try both of these grasses, but before doing so would like to have both the views of the editor and of all farmers who have given either one or both a trial. The principal objection to either of them is, I believe, their aggressiveness. Some claim that neither can be killed when once sown. Well, if that is true they are the grasses for my section. All land is, by continued cultivation, kept too *bare*, too much exposed to the scorching rays of the sun, and thus injured instead of being improved by the present mode of cultivation. What we want is a grass that will form a *sod* which is not easily destroyed—something which will stay by one when once sown.

Southampton Co., Va. A. B. C.

Our correspondent is perfectly right in what he says as to the necessity for seeding grasses that will make good and permanent covers for the land, but the reason why many of the older and well known grasses fail to meet these requirements is often more the fault of the farmer than the seedsman. All the grasses (except some of the indigenous varieties) are more exacting in their requirements of rich land and fine preparation of the soil, and seeding at the best season of the year, than most farmers are willing and ready to accord them. Other reasons why they fail to meet requirements are the prevalence of weed seeds in the land and the seeding of the grasses with a so called "nurse crop," which ought rather to be called in such cases a "robber crop." All the finer varieties of grass are weak growers in the first stages of growth, and when they have to make the battle for existence against strong, rank-growing weeds, or a robust-growing grain crop, the chances of victory in favor of the grass are slim. If farmers would make as perfect a preparation of their land for grass seeding as the best tobacco growers make for that crop—that is to say, secure a deep, finely-pulverized seed-bed—and would do this early enough in the fall or late summer to allow of the germination of all the weed seeds existing in the land, which weeds when germinated should be killed by harrowing after each crop has germinated until no other weeds sprouted, and then in August or September would seed the grasses selected alone, and without a grain crop, they would, if the land was rich enough, secure a stand of grass where now they fail.

Another cause of frequent failure is the seeding of cheap, impure seed and too light seeding. For the sake of saving a few dollars in the purchase of the seed, the risk is taken of buying old seed and seed full of weed seeds. Such trash is dear at any price. It not only disappoints in the crop for which it is seeded, but makes labor for years, and in this way makes cheap seed the dearest and most extravagant outlay.

And now a word as to the two grasses named. Johnson grass is really not a true grass, but a sorghum. Whilst it makes excellent and nutritive hay when cut at the proper time, and also good and permanent grazing, it is yet so aggressive, both by its root stalks and its seed, that it is almost universally condemned as a nuisance, and in at least one of the States of the far South its seeding or planting is prohibited by law. In other places, public opinion so strongly condemns its seeding that few attempt it. Whilst we do not sympathize with this wholesale condemnation of the grass, as it is undoubtedly valuable in many places and sections, and we believe would be so in many sections of this State where a less aggressive grass would altogether fail, we yet think that care should be taken when seeding or planting it to only put it where its aggressiveness and permanency is not likely to be an injury or a trouble either to the owner or his neighbors. As to the Brome grass (we presume Hungarian Brome is referred to), we can say that we have heard nothing but praise of it from those who have tested it so far. It is a hardy, strong-growing, drouth-resisting grass, giving an abundance of grazing, and making a good nutritive hay when not allowed to become overripe before cutting. We believe that this is destined to become a valuable acquisition to the grasses suitable for growing in the middle and eastern sections of this and the adjoining States South, and we think it should be largely tested all through these sections.

SAVING THE CORN CROP.

Editor Southern Planter:

I have been an interested reader of the *Planter* for seven years, the extent of my farming experience. I have gotten many useful ideas from it, such as the silo, the making and application of stable manure, pea fallow, etc. There is one idea which you advocate that I think is wrong.

In the November number and elsewhere you speak of "cutting or shredding all corn fodder, and storing under cover." You speak of it as "nearly the equivalent of timothy hay." Well cured corn fodder cut (I have had no experience with a shredder) is good feed, though it makes the animals' mouths sore sometimes. But it has been the experience of several of my neighbors and myself that it will not keep in a large bulk more than a week, even though it be well cured and dry. In a short time you will find it full of white dry mould. No more should be cut up than can be fed in a week or less.

I think this erroneous idea of keeping dry corn fodder in large bulk was started by the makers of the cutting machinery, who are not practical farmers. However, the idea of keeping *ripe* corn fodder in a silo is all right. I filled mine for the second time in September.

Now, I want your opinion of an idea of my own. Both last year and this, being short of corn, I pulled all the good ears of corn off the stalks before they were cut down to put in the silo. The corn was well glazed. The ears were shucked out immediately and spread thin on the barn floor, where they cured perfectly. I consider this the most economical way of securing the corn crop to get all feeding value, provided the socalled shucking-machines will do practical work, and a means can be found for drying out the uncured ears in large crops. In my case I had a large barn and a small crop of corn. Do you consider it practicable to dry out a hundred barrels or more by artificial heat like tobacco? And is there a practical machine to shuck the ears and cut the fodder into silo at the same time.

Hanover Co., Va. EDMUND FONTAINE.

We cannot agree with our correspondent as to the impossibility of saving the stalks and fodder from a corn crop by cutting or shredding the same, and then packing away the feed in the barn. We know numbers of farmers who are doing this every year, and thus utilizing the whole crop and storing it in small compass. To be successful, the crop must be well cured in the field and be perfectly free from water in the shape of rain or dew when stored. The natural moisture must be sufficient, however, to cause the mass to pack tightly and heat quickly so as to drive out all air, and this will prevent moulding. The mistake made by those who fail in securing a good feed from cut or shredded fodder is usually in cutting or shredding it when not free from rain or dew, and then in not packing it away in a sufficiently large and compact mass to admit of its heating sufficiently. Some also fail by disturbing the bulk when it begins to get hot. If this be done it will certainly mould. We remember a few years ago a farmer writing us that acting on our advice he had cut up his stalks and fodder and packed it away in his barn, but finding it getting hot had put his hands to work and spread it out to cool. We wrote him at once that he had spoiled the feed, and that it would all mould. This he reported was the result. We urged him to try again the year following, and take all our advice and not a part only. This he did. He let the bulk alone when once stored, although it got very hot. The result was a mow of fine feed. Treated in this way, shredded fodder is about equal to timothy hay in feeding value, and there are no sore mouths from the hard stalks. Cutting does well for filling the silo, as there the stalks become partially cooked and softened from the great heat evolved in the silo. Shredding is necessary to make the best product out of the stalks when to be saved in a barn. Nearly all fodder cutting machines are now fitted with both a cutting and a shredding head, either of which can be used as desired.

We think the method adopted by our correspondent of saving both the corn and the fodder of his crop in this year of short crops in this section highly to be commended. As he says, it was possible for him to adopt it only because of the size of the crop. There have been several machines invented for drying corn and small grain artificially by means of a hot blast of air, but we have never heard of their being of practical use in a large way. In England, in some sections where kilns for malting barley and kilns for drying oats for making oat meal are common, much damp wheat and grain of all kinds is dried on these kilns in wet years, and we have no doubt corn could be treated successfully in the same way, but we have no such kilns in the South. Possibly a tobacco barn heated with flues and provided with slatted floors and shelves might be utilized for this purpose. There is no difficulty in finding a shucking-machine that does good work. There are several on the market which we have seen doing excellent work and at the same time cutting up or shredding the fodder.—ED.

CLOVER IN EASTERN KANSAS.

In "Forage and Fodders," the last quarterly report of the Kansas Board of Agriculture, Mr. Bradford Miller, of Topeka, gives a whole lot of practical information about the growing of clover in Eastern Kansas, where he has resided for thirty-two years. A summary of his twenty-five years' experience with clover there, as reported by Secretary F. D. Coburn, is related in substance herewith, and should be interesting and valuable, not only to those who desire to give clover a first trial, but as well to those who already have well established fields:

After numerous trials, with occasional successes and frequent failures, I settled upon a course which for some years has been quite successful. In the spring of the year I select a well-cultivated field, plow the ground from four to five inches deep, thoroughly harrow it until a choice seed-bed is secured, using a heavy roller if necessary to obtain a finely pulverized soil. After the ground is in thorough order, I drill in from three fourths of a bushel to a bushel of choice clean oats to the acre; at the same time I use the grass seed attachment to the drill, and sow from twelve to fifteen pounds of choice, fresh clover seed to the acre. I discard poor, cheap seed, and use only the best. Soon after drilling, I run a heavy roller over the ground sown, which makes the seed bed more compact, holds and retains the moisture better, and at the same time leaves the surface in excellent condition for the reaper and mowing machine.

The oats are not so thick on the ground as to interfere with the rapid and strong growth of the young

clover, and afford shelter and protection for the young plants while growing. Cut the oats before fully ripe, and have them hauled off of the ground as soon as cured, as the young clover is likely to be smothered by shocked oats standing on the ground any length of time. The oats having been thin on the ground, do not subject the clover to the severe test from the heat of the sun that it would suffer had the oats been heavier and the clover is not dwarfed and stunted in its growth. The oats will not be as heavy as if sown thicker, but the crop grown is usually finely developed, with a plumper berry than when sown thicker, and amply repays with the straw, which makes a good feed when properly cared for, for the trouble of sowing and cutting the oats instead of having no nurse crop; besides, the growing of the oats keeps back the growth of weeds which would come up and grow with the clover.

I have not found broadcast sowing of clover profitable on account of the difficulty in getting it covered sufficiently deep to withstand dry weather, as well as in getting the seed at about a uniform depth.

Many failures in growing clover come from a desire to have a full crop of grain from the nurse crop, in addition to a good stand of young clover. In from five to eight weeks after the nurse crop has been cut the young clover should be mowed, which in dry weather should be left on the ground as a mulch, or if the weather is seasonable, may be cured for feed. The young clover should not be pastured during the first fall after sowing; indeed, I think I have never been profited by pasturing my clover meadows at any time, and incline very strongly to the opinion that meadows are very much injured by allowing stock to run on them at any season of the year.

The growth of clover after cutting affords an excellent mulch, which accounts for itself in the succeeding crop. The seasons of growth vary, owing to favorable or unfavorable conditions, so that no time can be fixed when the cutting should be done. The general practice is to cut it too late to get the best results in hay. I have obtained the best hay by cutting when about one third of the heads were turned brown. The mowing should be done after the dew is off, and the clover be soon turned with a good tedder, which assists the curing very much. With favorable weather it is ready for raking into windrows shortly after noon. The old rule, that clover is not ready to be put into the barn until it will rattle like a ladies' silk dress, has given way to the practice of getting it under shelter before the evening dew falls upon it; if fairly well wilted, the rest of the curing is done in the mow, to the benefit of the new hay.

Where the roof of the barn has good ventilators, no special risk is taken on account of heating and causing fire. When put into the mow in this condition, it cures nicely, and comes out in a bright and sweet condition the following winter. The second crop, for the same reason, may either be cut for seed or for feed; if for feed, the cutting should be done before the seed is ripe. The second crop is usually of a finer growth and makes a most excellent feed for young stock. If this crop is cut for seed, the cutting should be done before too ripe.

While the seed does not shatter badly if very ripe, when dried the stems of the clover break easily and the head is lost. The same trouble is encountered if the crop is cut with a mowing machine and subsequently raked and bunched for handling. A preferable way is to cut with a machine having a side delivery, which lays the clover off in bunches, where it cures without handling, and, when ready, is hauled away to be stacked or thrashed. If cut before too ripe and properly cared for, the straw, after thrashing, makes a good feed for cattle. While the seed may not yield as much as when cut later, the straw compensates for the difference.

The cost of thrashing (one dollar per bushel from the machine) is too much, with the price of seed at from three to four dollars per bushel, but probably cannot be helped until the quantity raised is largely increased; but the desirability of having good, fresh seed adds to the inducement of raising your own. Clover hay should be kept under shelter, and as a feed, when properly made and cared for, for most kinds of stock, I place it second to none other.

It is claimed very generally by clover growers that a field upon which a good crop of clover is grown for two successive years will, when replowed and planted to corn, yield from fifteen to twenty five bushels more corn per acre than it did before sown to clover, or than similar land by its side will which has not been thus treated. The percentage of increase is quite as large in raising wheat, oats, potatoes, and other crops. To explain just how this is done is not the purpose of this paper, but to speak of the fact, which has been fully established both in this State and elsewhere. The plant draws nitrogen from the air, and stores it in the soil for the use of succeeding crops. The roots of the clover penetrate to a great depth in the unplowed subsoil, drawing nutriment therefrom, assisting in holding moisture, which, when the roots die and decay, increase the fertility of the soil as well as the storing capacity for moisture and with its sister, alfalfa, has justly earned the name of the "silent subsoiler," whose success and efficiency are generally admitted and admired.

[Whilst we are strongly of opinion that the early fall months are the best in which to sow clover in the South, there is yet so much seeded in the spring that the foregoing may well be pondered by Southern farmers. The remarks as to curing the clover are closely in harmony with the course we have advised. —Ed.]

EXPERIENCE WITH THE COW-PEA.

Editor Southern Planter:

The enclosed article is clipped from the *Country Gentleman*, to which paper I sent the enclosed answer, which was returned to me by the editor with the remark that they did not allow their writers to talk about people "sneaking." Inasmuch as they allow men to make attacks on me over initials, I can see no reason why I should not call a spade a spade. Of course, it is entirely unnecessary for me to defend any of my ideas with the farmers of North Carolina, and as I have said, there is nothing to prevent a man from sowing twice as much seed of anything as is needed. But when he advises other men that such waste of seed

is necessary, it will retard the progress of the use of the cow-pea, for there is a complaint among farmers northward about the cost of the seed. While F. B. may occasionally pick up peas in the country at the prices he names, no farmer north of the Potomac can get a bushel of peas for less than $1.50 from any seeds man, nor could he freight them from the South for much less. The chances are that the coming spring the price of seed peas will be uncommonly high, owing to the drought of the past summer. The gentleman to whom F. B. refers me is my intimate friend, and we often chat about farm matters. But though he may sow an unnecessary amount of seed, I have never heard him talk of sowing two or three bushels of peas per acre. Certainly his field did not look any thicker than mine, which had one bushel per acre.

W. F. MASSEY.

Editors Country Gentleman,—Referring to letter on page 760, I must say that if Prof. Massey were better acquainted with the farmers in his own State, he would have found a good number that would not sow less than two bushels of Whippoorwill peas to the acre. I refer him just to one of them in his vicinity, a very successful feed grower, B. P. Williamson, of Raleigh, N. C., and probably he could get there some more information about prices of cow peas, so that he could give a more moderate estimate of cost of sowing cow peas per acre. I have been nineteen years in North Carolina, and paid only twice more than a dollar for a bushel of cow peas (in 1882 and 1900). The prices were from 50 to 90 cents in the other years. Of course, farther north they will cost more, but certainly not $2 per bushel. Prof. Massey has had his ideas about the value of cow pea hay changed since he published his guess in the *Southern Planter;* but to value even his spotless product as equal to two tons of good timothy hay is for me rather steep, and I do not know any animal that would utilize cow pea hay in such a proportion. I advise the Northern farmers not to expect that much, or the result may disappoint them. Making cow-pea hay is not such a great thing, provided there is plenty of good sunshine on hand, and any farmer that can make first class clover hay will easily succeed with cow pea hay, provided it is sown thick and regularly. The best way is to drill it with a wheat drill, and if harrowed well across the drill, to spread the seed somewhat, it will grow evenly and will also cure evenly and faster, and make a good quality of hay. Perhaps Prof. Massey may not see the importance of such a seeding, but I trust the Northern farmer will understand why at least two bushels of seed is needed. That the Northern farmer should experiment with early cow-peas is natural, but the cow-pea crop depends more on rain than on the kind of seed. Some good showers may produce even a crop of clay peas in a very short time, and dry weather may make even early peas late. Mr. M.'s objections to early black eye peas sound rather curious—first, because people eat them; second, because they grow bushy. I consider the bushy growth of a plant in favor for forage, and so do a good many men with experience.

F. B.

Buncombe Co., N. C.

Editors Country Gentleman,—I do not know who your correspondent "F. B." (page 859), of Buncombe county is, and perhaps should not notice a man who sneaks in ambush behind initials. But it is altogether likely that I know and am known by a hundred farmers in this State to his one, and that I have done more for the encouragement of the culture of the cow pea in this State than any other one man in it. If any man wants to sow two or three bushels of peas per acre, he has an undoubted right to do it. But to try to make farmers who have had no experience in the matter believe that it is necessary to sow that amount is another thing altogether. Last spring I had letters giving the experience of farmers in all parts of the United States with the Southern pea, the manuscripts of which actually weighed seven pounds, and were written by near 200 practical farmers. Not one of these advocated the sowing of two or three bushels per acre. I have a correspondence with the farmers of this State amounting to 4,000 letters annually on all sorts of farm topics, and never yet have I seen where any practical farmer has mentioned the sowing of two or three bushels of peas per acre. It is a little odd that the two who now attack me in an unwarranted manner live way up from 2,000 to 4,000 feet above the sea level, where the climate is not North Carolina at all, but they assume that they know more about North Carolina and her products than a man who travels and mixes with the farmers at their institutes in all parts of the State, and who is constantly in correspondence with the most intelligent of them. F. B. has been fortunate if he has gotten peas within the past two or three years as low as $1 per bushel. It is true that at times they are in the country districts as low as 55 to 60 cents, but for the past ten years they have been more frequently over $1 than under it, and if, next spring, F. B. gets a bushel for $1, I would be glad to know of the place where he buys. My objection to the black eye pea was that, as a forage plant, it does not give vine enough to make a crop, and he is the first man I have ever heard of who prefers a small forage maker to a large one. The early ripening peas are a necessity in the mountain country, as they are in the North, but in the section of the State east of the Blue Ridge, F. B. will find that farmers who grow peas for forage as a rule prefer the Unknown because of its heavy vine-making character. If F. B. will feed to milch cows timothy hay in comparison with good cow pea hay, he will find out why I would rather have one ton of it than two of the timothy. If he will come here, I will show him a pair of Percherons who keep fat in winter on cow pea hay alone. For a dairy animal, I had rather have oat straw than timothy hay. What he refers to as my "guess" in the *Southern Planter* I cannot say. Certainly I am not in the habit of guessing about these things which I am practicing with daily. We have had about as dry and hot a season as ever befel any country, but it did not "make early peas late," for I had two ripe crops of the Early Black eye on the same land, and both together would not equal in forage the one crop I had from the Unknown, sown one bushel per acre. I do not object to the black eye "because people eat them," for I grow them to eat myself, but I do not grow them for hay, for they will not make enough of it. F. B. may be satisfied with a ton per acre, but I had rather have three tons from the same land, and that is about the

difference between the Black eye and the Unknown. If F. B. and H. S. want to learn something about the cow pea, they must come down from the mountains into a true cow-pea country, and not try to criticise a man who has been familiar with the Southern pea for forty years. W. F. MASSEY.

Since writing the article in reply to F. B, I have had a talk with Capt. Williamson, my neighbor, to whom he referred me as one who sows two to three bushels of peas per acre. The Captain smiled, and said, "I did once sow two bushels per acre, but have never done it since. One and a half bushels are an abundance, and I never advise more." It is now up to F. B. W. F. M.

IMPROVING SWAMP LAND.

Editor Southern Planter:

I read and re-read, with much interest, the letter written by Mr. Will. B. Rodman, of Washington, N. C., in your November issue. I appreciated it much, and write this hoping to get more information from Mr. Rodman.

If I am not mistaken in the man, I know Mr. Rodman as a very able lawyer, second to none in the First District of North Carolina. And now that I know him as a practical farmer, I regard him as a very useful man indeed, and one who should be known and appreciated more by his people.

His soil, according to description, is about the same as mine, and I am pretty sure we are in the same swamp, though many miles apart. I would say that planting my land in rice was the cause of its being made poor, although I did not have it in charge at that time. I would like to ask Mr. Rodman if he finds deep plowing to pay on his land I mean, in the long run, does it pay to plow deep? Does it not have a tendency to kill the land when plowed deep enough to strike the burnt matter?

I have about four hundred acres of this land that I call new ground. It is now in a fine state of cultivation, and I want to keep it so. Some of it has been in cultivation all the way from three to ten years, and been planted in corn only, it being too loose and chaffy for cotton, and I did not want to plant it in rice. Some of it is beginning to fail. How could I manage it to keep it up?

Do I understand Mr. Rodman to say that, from his *own* experience, he finds fall sowing better than spring sowing for oats? I have some stiff land that I put in oats, but have never tried sowing in the fall on my loose black land, thinking that the cold would kill them.

The three years' rotation suits me, all but the cotton; I am afraid to risk it on that land, but will try some, at least.

The first year after cutting the pea vines, do you break the land in the fall, or let it remain until you break it for cotton in the spring? The second year, after cotton is picked, do you break the land in the fall, or wait until the spring and break only once for corn? The third year, do you cut corn, or leave stalks in the field after taking corn from them? If so, what do you do with the stalks? What do you think of plowing in dead grass on your land? Do you like deep or shallow ditches on that land? Have you ever tried Hairy vetch on your land? What result?

I will now write a little from my own practical experience, hoping to benefit some one, as I have been benefited by the experience of Mr. Rodman.

I find it entirely out of the question for me to harvest my corn by cutting and saving the stalks and fodder, as advocated by many up-to date farmers in some parts. The main reason is a lack of labor to handle it in time, and again there is apt to be too much rain, heavy fogs and dews to make it anything like a safe plan for this part of the country. I have about six hundred acres in corn this year, and at the last plowing I sowed peas broadcast at the rate of half bushel to the acre. For this purpose I like the Wonderful pea. It grows a rank vine and does not climb the stalks of corn as badly as some other varieties.

I have nothing like labor enough to pick the peas. I will do well to save my seed, although the peas are good. I think mine would average ten bushels to the acre the farm over if all were saved. As soon as I get my corn in—say, about December 10th—I will turn what stock I have in on the peas. They will trample down the pea vines, and in the spring, when I get ready to break the land for corn, I use a Louisville stalk-cutter to cut the stalks. This runs one time to a row and cuts the stalks in pieces twelve inches long. Then I plow in stalks and pea vines. This, I find, greatly improves my land. I have not been using bought manure, but think it would pay to use acid phosphate and kainit on the pea vines.

As my land is well drained, does Mr. Rodman think that it would pay me to lime it? Would not plenty of phosphate and kainit be sufficient?

I want to say that land sowed to oats, and, as soon as oats are cut, sowed to peas, and all cut at the proper time for hay, beats any of the clovers or grasses on my land, and makes fodder, putting other hay and fodder out of date.

Washington Co., N. C. W. T. HOPKINS.

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RANDOM NOTES.

Editor Southern Planter:

Swamp Lands.

I was very much interested in reading the experience of Col. W. B. Rodman on the improvement of the productive capacity of our swamp lands. What a mine of wealth Eastern North Carolina has in these lands when intelligent men like Col. Rodman take hold of them. There is not the slightest doubt that the corn production on these lands can be made to rival that of the black prairie soils of Illinois, and when once the owners of these lands realize the great advantage they have in their location near the seaboard for the feeding of export cattle, Eastern North Carolina can compete with the West on favorable terms. I believe that Col. Rodman's estimate of the eventual production of sixty bushels of corn per acre is too small, as well as that of a bale of cotton per acre. Would that there were a thousand men of like faith in North Carolina soils.

Find What Your Land Needs.

Mr. Boyce is right in urging farmers to experiment for themselves. Many still have a notion that a chemical analysis of their soil would show what it needs. But the chemists know that this will not do, and that the only way to find the needs of any particular soil is to test it in a practical manner with plots on which the various forms of plant food are used alone and in combination. The farmer can in this way find what he needs to buy, and what he need not waste money for. And yet in the whole South I know of only one solitary farmer who is doing this. His fine farm is, of course, a profitable one, for he is finding out for himself its needs and is supplying them. He is on the red clay lands of Tennessee, and last year he showed me a field of corn which had been plowed and sub soiled eighteen inches deep. I need not add that the corn, in spite of drought, was extraordinary. The student farmers are the successful men to-day everywhere.

Hauling Manure Out on the Grass.

Mr. Winkelman's article was rather amusing to me. It seems hard for some men to get away from the idea that manure is something to keep and hoard. That it must be handled and stored and rotted, and allowed to waste its sweetness on the desert air of the barn-yard rather than spread on the fields where the grass and other crops are waiting for food. Mr. W. says: "On all farms where the soil is alternately laid out as pasture for two or three years, as the case may be, the pasture is not only considered as an improvement of the soil, but the pasturage as well as the grass crop is relied upon as a net income, and very few farmers would be willing to spend any money on it in the form of manure or fertilizer unless very good reasons justify this expenditure." Now, while I do not favor the letting of land that is used for crops lie out two or three years as pasture in any of our eastern sections where land is valuable, it is nevertheless true that where grazing is practiced as a source of revenue there is no use for the manure that pays better than putting it on the pasture. I can point Mr. W. to lands in Maryland which have been used for grazing beef cattle for generations, on which the owners spend large sums annually for fertilizers, and have greatly increased the capacity of the land for feeding cattle without ever putting a plow in the ground. No matter what the farmer's money crop may be, the quicker he gets the manure out where some plant can use it the better. No matter how the manure is cared for in the barn-yard, it loses value faster than spread on the land, and on a sod that is to go in corn in the spring there will be a larger crop where the manure is hauled out and spread in the fall and not plowed under till spring than where it is plowed under at once, or where it is not hauled out till spring. This has been thoroughly tested.

Killing Johnson Grass.

The best way is to graze it hard with sheep. That will kill it if the sheep don't die first.

Blue Grass.

You are right in the statement as to the species of Blue grass in Eastern Virginia and Maryland. It is a terribly aggressive grass. But I believe it is better as a permanent pasture grass there than the Bermuda. It is *Poa compressa*, and has the capacity for growing on poorer land than the Kentucky Blue grass, and does not require so much lime in the soil. Fallowing wheat stubble for wheat again will rapidly increase this grass where it abounds till it will smother out the wheat entirely. Like Johnson grass, it is a fine grass, but a great pest at times.

Lettuce.

We never had so much trouble in getting a stand of lettuce plants for the frames. The Pieris moths seemed to abandon the cabbage and take to the lettuce, and their larvæ ate up our lettuce plants as fast as we could raise them, while the cabbages near by were hardly touched. We have made a note of this, and hereafter will sow about ten times as much lettuce as we need, and use the plants as a trap crop for the green worms, and then whack away with the petroleum emulsion on the lettuce or dust them with pyrethrum. Pyrethrum powder has been most effective this fall, while arsenical poisons hardly affected the worms.

W. F. Massey.

A PROFITABLE TOBACCO CROP.

Editor Southern Planter:

Mr. A. H. Bousman, one of the largest and most successful tobacco raisers of this section, has just completed a very interesting and profitable experiment in tobacco culture. Mr. Bousman had a fine crop of about 130,000 tobacco hills, which he cut and housed early in August; by the last of September the suckers had grown to be so large that he concluded to try the experiment of raising a second crop of tobacco on the same land from the suckers on the stalks from which his first crop had been cut. Accordingly, he went over the entire field and removed all the suckers from each hill except the largest specimen; this he topped and allowed to mature. The last of October he began cutting this second crop, and by November he had it all housed. By many it is considered that the second crop is even more valuable than the first.

Mr. Bousman thinks he has demonstrated the fact that where an early crop of tobacco has been raised, by allowing one sucker to remain on the stalk below where the plant is to be cut, and using this sucker for the future crop, a second crop, equally as valuable as the first, can be raised on the land, which will require no additional fertilizer and much less labor than the first crop. We understand that others will try the experiment next year.

The largest wheat acreage ever seeded in this section has been put in this year, and in nearly every instance the land has been better prepared and better fertilized than before, showing that the idea so long and consistently advocated by the *Southern Planter*, of more thorough preparation of the land, is beginning to be adopted by our farmers, and the yield will doubtless show the wisdom of such a course.

Henry Co., Va. C. C. BEAVERS.

LEGUMINOUS CROPS AS NITROGEN PRODUCERS.

[Continued from the November number.]

The fact that the vetches require inoculation with the proper kind of bacteria before they will produce root tubercles and gather the nitrogen from the air is curious and interesting. Last fall I bought some vetch seed and started to experiment with it, but that was previous to the issuing of the bulletin quoted, and I did not at that time know that inoculation was essential. It happened, however, that my experiments were conclusive in demonstrating that vetch will succeed here if inoculated and will utterly fail if not inoculated. I planted some seed in the garden where English peas had previously grown, a half acre of rye and vetch near the barn that was close to where English peas had grown several years ago, and three acres of rye and vetch after sorghum and cow peas at least a quarter of a mile from the nearest land where English peas had grown.

"No inoculation was done. The rye after sorghum and peas made an excellent crop, but the vetch plants on that land, like the old cows fed on corn stalks, lived through the winter and died in the spring. The rye and vetch on a half acre near the barn behaved in an interesting manner. The rye grew well, but the vetch, though it stood the winter perfectly, failed to start in the spring as soon as the rye, and when we made the first cutting for cow feed the vetch was not more than a foot high, when the rye was two or three feet high. This, as stated, was near where garden peas had grown several years ago, and though the right kind of bacteria were not abundant in the soil there were a few, and as the season advanced the tubercles on the vetch roots, which were scarce at first, gradually multiplied and the vetch went on and made a fine crop of vines and seed after the rye had been cut off. I have harvested the vetch seed, but found the ground covered with shattered seed after raking up the vines, so I plowed it at once, sowed rye broadcast and harrowed it in July 20.

"Where vetch was planted in a row in the garden, tubercles on the roots formed early and abundantly, and the vines were very much more vigorous than were tubercles were absent. I am sure this was not because the soil in the garden was richer in nitrogen, for some of that near the barn was as rich as soil can be made, and the growth of rye after sorghum and peas and the stand of timothy and clover show that nitrogen, potash, and phosphoric acid were all present in fair quantity in that soil. On my wheat field of 20 acres the young clover was all killed this year by the severe spring drouth. Some timothy is left. I have plowed three acres of this wheat stubble, intending to make it produce more and better hay in 12 months than will grow on the other 17 acres of timothy, and I shall buy nothing but seed and South Carolina rock.

"I shall divide the three acres in two equal parts and put half in rye and vetch and the other half in winter oats and vetch, seeding both about September 1, just before corn and sorghum are ready to harvest. Then, when the crops of rye and vetch and oats and vetch have been harvested for soiling and hay, I shall plow the land at once in June and reseed to sorghum and cow peas. The harvesting of these crops will not interfere with anything except working corn and cutting wheat, and as these processes have been so facilitated by machinery we need not fear to undertake a large hay crop on a small area.

"This year the finest crop of sorghum and cow-peas that I have ever seen grow is one and a half acres seeded June 25, after oats and Canada peas were cut green for cows. The oats and peas were seeded April 1 and the sorghum and cow peas will be ready to harvest early in September. This piece of land has had no barn manure for four years, but has had a small dressing of poultry manure and rock phosphate in preparation for each crop.

"I have now growing the fourth successive crop of sweet corn on the same ground without barn manure. The first crop was on inverted clover sod and no peas were sown. The second year the crop of sweet corn was marked by inferiority to the first, but had cow-peas seeded in the corn at the last working and the vines left on the land. The third year the corn was

better than the first. Peas were again seeded at last working and the fourth year, though a very unfavorable one for corn, has produced the finest growth of sweet corn that any one in my neighborhood has seen. This patch being within range of our chickens, they harvest the crop of seed peas and the egg product is something surprising. The census man told my wife that she produced more eggs on less feed than anyone in his district. We think cow peas well worth growing for chicken feed This is the only feed yet tried that will keep the hens laying all through the moulting season, and they take on sweet juicy meat that is not fat in a surprising manner, going into winter quarters in the best possible condition.

"Some observations as to the relative value of various peas and beans as soil improvers may be interesting to you, though they lack the value of scientific accuracy, since no analysis of soils or plants could be made. There are over 7,000 species of leguminous plants known to botanists, and until recently I had been led to believe that all of them had tubercles, that all were capable of gathering their nitrogen from the air, and were little benefited by nitrogenous manures. Experience teaches, however that they differ greatly as soil improvers and in their power to live and grow upon poor soils, and I would divide them roughly as soil improvers into three principal classes. First, the poor land legumes, that will live and grow anywhere where there is heat and moisture enough to sprout the seed and mineral matter enough in the rocks to support them. They are not benefited by applications of nitrogenous fertilizers. To this class belong cow-peas, lupines, velvet beans, Bokhara clover, beggar weed, and many wild plants. Second, the intermediate legumes, which require a fairly good soil to start their growth and a good supply of moisture while the plants are young. They are benefited by moderate applications of nitrogen to the soil. To this class belong the ordinary clovers, vetches, garden peas, many beans and many wild plants that grow in rich, moist, virgin soils. The Soy beans belong to this class, being benefited by nitrogen and not always producing tubercles. Third, the rich land legumes, which make few if any tubercles and require the very richest land to produce their crop of highly nitrogenous vines and seed. To this class belong the limas, snapshorts, creaseback and lazy wife beans. All these have failed absolutely to produce tubercles on my farm, though other legumes produce them abundantly on the same land. For this class of beans the seedsmen always recommend large applications of barnyard manure.

"We are only beginning to obtain a faint understanding of this highly interesting subject, and I trust that the experiment station workers will pursue it with all the intelligence and careful technique that modern science can bring to bear."

A RICE TRUST.

An "American Rice Growers' Distributing Company" has been incorporated at Chicago, with capital stock of $15 000,000 ($7,500,000 paid in), to buy domestic rice under contract with growers for four years for a stipulated price, somewhat in excess of present market rates, with privilege of renewal.

CURING CORN FODDER.

In connection with our constantly reiterated advice to cut up the corn crop at the roots and cure the whole stalk and fodder together, we are frequently met with the rejoinder that in some sections of the South it is not safe thus to handle the crop from climatic causes. Perhaps the following method, described by Mr. J. C. Norton, of Allen county, Kansas, as the one he adopts, may meet the difficulty experienced:

"The proper time to cut the corn is as soon as the kernels glaze or dent and while the stalks and leaves are still green and full of sap. Corn should never be cut up only on a bright, clear day or on such a day as it is good to cure hay in.

Two men should work together, and the shocks should be started on a jack, which is made by putting two legs well braced together, near one end of a ten-foot scantling, and having an auger hole near the upper end for a broom handle. As soon as four armfuls are set up against the jack, the shock should be loosely tied with a stalk and the jack removed. In commencing, each cutter should take two rows, and all the shocks should be started that the cutters expect to cut during the day, so that when they again start in the shock has wilted and cured out all that is possible. They should now take only one row each and cut from shock to shock, making each armful go half way around the shock, in order to allow it to wilt and cure out. After they have cut clear through, they should again go back to the beginning and cut another row each, continuing this until the shock row is completed, always having in mind the perfect curing of the corn.

The shocks should not be violently compressed, as is the usual practice, but loosely tied with a cornstalk to prevent the outside stalks blowing down. An average shock that weighs 300 lbs. when cured will weigh 1,000 to 1,200 lbs. when green; and who is there who would put in a shock 1 200 lbs. of green grass and expect it to cure out perfectly, especially if heavily weighted? Any one knows better than to do this, so why treat a corn shock that way? Just as sure as a green corn shock is tied up tight, without any chance to cure out, just so sure will a chemical change take place that unfits it for feed, even if it does not turn black or moldy. A pile of green grass treated this way would heat and "mow burn" and come out black and musty, and would be only fit for bedding, as all digestible matter would have been destroyed by the heating. I have seen lots of corn fodder come out dark and spotted from this cause, and, if it looks bright, a close scrutiny with a powerful glass will show that it has passed through this chemical change that causes cattle to smell it all over before they taste of it, while properly cured corn fodder will have a sugary odor that the cattle smell long before they reach and eagerly devour it.

To avoid this chemical change in newly cut corn fodder, most farmers delay cutting until the leaves on the stalk have cured out standing, and thereby secure a very poor grade of fodder.

Mention the *Planter* to your friends

A SUCCESSFUL TOBACCO GROWER.

The Timmonsville, S. C., *Enterprise* relates the following interesting facts concerning Mr. J. Henry Privett, a grower who recently sold a good quantity of tobacco on that market, and who, as the *Enterprise* well says, "has a record which we think deserves publicity":

"Mr. Privett had rented a part of the old G. E. McCall place for years. In 1896 he purchased this place from Mr. John McSween, giving him a mortgage for $4,500, with interest from date at 8 per cent. Since then Mr. Privett has spent $2,000 for stock, etc. Recently he put 5,728 lbs. of tobacco on the Berger Ware house floor and received a clear check for $1,596.21, an average of 28 cents per lb. After the sale he called at the John McSween Company's store and paid the balance due on his mortgage, amounting to $1,193.46. With him at the sale were his two daughters, Misses Annie and Mamie, who have graded and tied every leaf of the tobacco. Mr. Privett had only the highest praise for Timmonsville, Mr. John McSween and Capt. Berger, and he went home to a farm easily worth $10,000, bought four years ago and paid for with the receipts from his tobacco sold here."

IRRIGATION FOR THE EAST.

The Office of Experiment Stations of the U. S. Department of Agriculture will soon issue Bulletin No. 87, entitled "Irrigation in New Jersey." It was prepared by Prof. E. B Voorhees, of the New Jersey Experiment Station, and describes his experiments in irrigation for the season of 1899. It is generally thought that the necessity for irrigation in the United States exists only in the region west of the Mississippi river, but repeated crop failures in the East and successful farming in the West have called attention to the importance of controlling the moisture of soils rather than accepting the conditions as they exist. Professor Voorhees estimates the loss to the hay crop of New Jersey from the drouth in May and early June, 1899, at $1,500,000, while small fruits and vegetables were even more seriously affected than the grasses. The records kept by him at the experiment station showed that "in 1897 and 1898, years of abundant rainfall in April and May, the yield of hay averaged 2.65 tons per acre. In 1899 it was but a fraction over one ton, owing to the deficiency of rainfall in April and May, at the low price of $10 a ton, a loss for the 25 acres of over $400. The yield of crimson clover forage for 1897 and 1898 was 8 5 tons per acre; in 1899 the yield was but five tons, or in a good year the yield was 70 per cent. greater. The deficiency in the rainfall of the critical period was alone responsible for this difference in yield. Oat and pea forage in 1897 and the early seeding of 1898 averaged six tons per acre; in 1899 the yield was but 3.3 tons per acre."

The experiments conducted by Professor Voorhees and reported in this bulletin were for the purpose of determining whether irrigation during these short periods of drouth would result in sufficient increase of yield to pay for the works necessary to obtain the supply of water. The tests were made on small fruits Careful records were kept of the yields of plats, which received identical treatment, except that some were irrigated and others were not.

ENQUIRER'S COLUMN.

Prof. W. F. Massey will reply to questions on Agriculture, Horticulture, and Fruit-growing in this column. Enquiries should be sent to him at the Agricultural College, Raleigh, N. C., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Angora Goats

Are Angora goats profitable animals to raise? What does their hair sell for per lb.? How much hair will a grown goat shear?

Brunswick Co., N. C. JAS. W. MURRELL.

I hope there is some reader of *The Planter* who knows more about Angora goats than I do. I may possibly have seen one, but I know no more about raising or keeping them than I do about camels. I hope that some one who has had experience with these goats will answer the inquiry.

W. F. MASSEY.

Angora goats are likely to prove profitable, kept on the hills and waste lands of the country. They are great cleaners up of land covered with bushy undergrowth, as they prefer this to good grass grazing. A goat will clip from 3 to 6 lbs., according to size and purity of breed. The hair varies in price, according to quality, from 10 to 40 cents per lb.—ED.

Hairy Vetch.

Can Hairy vetch be killed out of land easily, or is it like Johnson grass—when you once get it in your land there is no getting rid of it?

Pamlico Co., N. C. E. A. HOUGH.

Hairy vetch is purely an annual, and if you do not allow the seed to ripen before cutting it, you will see no more of it. If the seed falls it will come again the following fall, but can never get to be a nuisance, as it does not grow in the cropping season. But as Mr. Stabler, of Maryland, recently said, a weed that will give three tons of hay per acre, and is off in time to plant corn, and will increase the corn crop on the land 100 per cent., and make at the same time hay better or equal to the best clover, is a weed that can have all the room it wants on my land.

W. F. MASSEY.

Essex Rape for Pasture for Cows and Calves.

Kindly answer through *Southern Planter* for December the following questions in regard to Essex rape: 1st. Can calves be pastured on it? If not, how much can be fed to them with safety? 2 1. Is it suitable for milch cows? Also give name and value, if any, of enclosed grass.

Saluda, S. C. CABELL SMITH.

If turned in a little while at a time at first, till they get accustomed to the feed, I can see no reason why calves may not do well on rape. But they should be tried only a few minutes at a time for awhile. I be-

lieve my colleague, Prof. Irby, fed it to his own cows last winter. I had a large patch which I turned over to him, as I had no stock to eat it. Will refer your letter to him for answer. The enclosed grass had lost too much of its distinctive head to be positively identified. It seems to be one of the Panicums, some of which are valuable. Send me a sample when in bloom next season. W. F. MASSEY.

Essex rape is not a good food for milch cows, as it is apt to taint the milk.—ED

When to Cut Sage and other Herbs—Registering Live Stock.

Please tell me how and when to gather sage. I had a large bush and picked most of the leaves off, and it died. Also kindly tell me how to go about having stock registered. What is the fee, and who keeps the books in which they are registered?

Amherst Co., Va. NEW SUBSCRIBER.

Sage and other seasoning and medicinal herbs should be cut for drying when coming into bloom. The strongest of the new shoots on which the bloom appears should be cut off nearly down to the point at which they start to grow from the old wood. This will leave the weaker shoots on which no bloom appears to continue the growth of the plant. The picking of the leaves from any plant is one of the surest ways to kill it if persistently followed. The leaves are the lungs of a plant, and it can no more continue to live without them than can a human being live without lungs.

The different pure breeds of live stock are registered in herd books kept by societies formed for the purpose. These different societies have their offices in different sections of the country, and have each rules and regulations governing the registration of the different breeds. We shall be glad at any time to give information as to the location of the office and officer to whom application should be made for the registration of any particular breed of stock if the breed to which the animal desired to be registered belongs be mentioned.—ED.

Johnson Grass—Sweet Potatoes Rotting—Fertilizing Peach Trees.

Will you kindly give me information in next available issue of *Southern Planter* concerning following questions?

1. Is Johnson grass easily confined to a certain field? Would you advise the sowing of same with a view of raising for forage?

2. The idea seems to be prevalent in this immediate locality that acid phosphate, used as a fertilizer for sweet potatoes, causes them to rot badly. Is this correct, or does not the cause lie elsewhere?

3. Should young peach trees planted in fall be fertilized at time of planting in piney woods soil? If not at time of planting, when?

Mobile Co., Ala. DANIEL J. ERDMAN.

1. Perhaps, if never a plant was allowed to seed, it might be kept somewhere in the neighborhood. But ordinarily this will be found impossible, and once started, there is no telling where the grass will stop. The man who sows it in a section where it is not now found should be prosecuted as a public enemy.

2. There is no good reason for supposing that acid phosphate will cause sweet potatoes to rot. Rot is the result of a fungus attack, and is not caused by chemical action. Sweet potatoes need phosphoric acid far less than they do potash, but a due proportion should be used in the fertilizer.

3. If the peach trees are planted in the fall, as they should be with you, I would fertilize them by scattering the fertilizer on top the soil around the tree in the spring. The tree cannot use it till the new roots have started. W. F. MASSEY.

Seeding Timothy in Soja Beans.

May I trespass upon your valuable time to ask you if I can, with any hope of success, sow timothy with a crop of soja beans next year about June. Wish to let beans get ripe for threshing out. Should use about 200 to 300 lbs. pure bone meal per acre if I thought the timothy would take and do well at the bottom of the other crop.

Fauquier Co., Va. JAMES ARNOLD BOFFIN.

Never having sown timothy at that time of the year, or in a crop so dense as the Soy bean, I am unable to give any information that will be useful to you. Only actual experiment will determine. I am of the opinion that it would be a failure.

W. F. MASSEY.

Ice House.

I notice in the *Planter* of last month an article on ice houses. I am building one 20 x 25, 14 feet deep, 4 feet underground, and 10 feet above. My plan for drainage was simply to lay two layers of logs, one layer each way, and put sawdust over them, making the foundation, say, two feet. Will a house built in this way need any pipe or outlet, not having a board floor? Also, how many tons of ice will it hold, having a man in the house to maul it when put in?

Mathews Co., Va. DANIEL RICHARDSON.

The system of drainage proposed will very probably answer the purpose, especially if the subsoil be porous; but the importance of good drainage is so great that we would advise the placing of a drain from the bottom, if at all practicable. When ice once gets standing in water, it melts away very fast. Kept dry and closely excluded from the air by good insulation, it will keep with but little waste even in very hot weather. The capacity of the house, after allowing for the foundation and for packing around the ice with sawdust as stored, will be about 150 tons. Ice weighs about 57 lbs. to the cubic foot.—ED.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

Whilst in consequence of the exceeding mildness of the season it is probable that there will be considerable planting of cabbages made all through the trucking sections of the Southern States during the early part of this month, it is practically too late now to plant any crops. The cleaning up of land not under crop and of burning or composting all trash, and of plowing the land to fit it for spring cropping, is the principal work that can be undertaken with advantage.

Pruning of orchards, vineyards and small fruit plantations should be attended to. Burn all prunings and trash from these grounds, and thus destroy insect pests and fungous spores.

It is now getting late for the fall planting of orchards, though whilst the weather continues mild, this may proceed. With the setting in of severe weather, heel in all fruit trees received from the nurseryman and protect them from frost and set out in early spring.

Compost heaps should be prepared for supplying the frames in spring and for use on land to be cropped next season. Leaves and vegetable matter of all kinds, turf from old pastures and wood's mould should be mixed with good barn-yard manure and be thrown up into compact heaps (the larger the better), and be covered with soil to absorb the escaping ammonia. After these have stood some time, they should be turned over once or twice and be thoroughly mixed so that they become sweetened and thoroughly rotted.

Keep the cold frames filled with lettuce plants from the beds as the plants are cut out and marketed or eaten, and thus lengthen out the season of production. Give air at all times when the weather is mild. On the approach of frost, close up and cover with mats or brush.

Clean up all trash from the lawn and flower garden and dig up the beds and manure them. Roses and other tender plants and shrubs should be well mulched with half rotted manure around the roots. Pruning of roses and similar tender plants is better deferred until spring.

Bulbs, such as tulips, hyacinths, daffodils, narcissus and lilies should be planted. They do best in light rich soil well drained, and should be planted firmly and be covered with an inch or so of light soil and a mulch of straw over this to prevent heaving of the land. This straw should be removed in the spring after the bulbs have begun to grow.

STRAWBERRY CULTURE—LATE FALL AND WINTER PLANTING.

Editor Southern Planter:

I set my first strawberry plant in 1874, following then the usual plan of spring setting. I well remember having had my ground all ready in February and was anxious to begin my new venture. But the man I had engaged plants from advised me to wait later. Again, in March, he gave me the same advice, adding that the plants had not even begun to grow yet. About April 15th I obtained the plants, set them out, and, fortunately, got a perfect stand.

Still it would have been wise to have done the planting much earlier. A very small fraction of the twenty-six years experience that intervenes between now and then was sufficient to show me that the safest and best time to transplant the strawberry is while it is in a dormant state. I do not mean that it will not live and thrive planted at other times, but that it is easier and surer to live and thrive in proportion as you approach the period of dormancy.

Thus we transplant successfully between October 1st and April 15th. But the great bulk of our planting—100 to 200 acres—we prefer to do in late fall and winter. The soil is then always moist, the sun weak, and all conditions favorable to this plant, which loves coldness and moisture and hates heat and dryness.

This enables us to avoid hurry, to prepare the soil well, and to do the planting in a thorough manner. If bad weather interferes, no harm results. We simply let it pass and go to work again.

We usually begin late in October and continue through late fall and winter till all the big job of setting a million or more plants is over. We have had the temperature fall nearly to zero within a few days after fields of plants were set. No harm whatever resulted. But on stiff, wet land we always step on the plant after it is set, if planted in winter. This compresses the soil around the plants and prevents its heaving so bad in heavy freezes. On light or dryish soils this is not necessary.

With this simple precaution plants can be safely set anywhere south of the latitude of Washington, D. C., at any day in winter when the ground is not actually frozen. The same can be done at the North, provided a little protection is given. A fork full of litter or stable manure applied over and around the plant affords the protection needed. The manure will benefit plants whether set North or South. But it should never be applied till freezing weather comes, and part of it should be removed as plant growth begins in spring. Thus applied, manure benefits in two ways—it lessens the freezing and heaving of the soil and also nourishes the plant.

If growers were more alive to the above facts they would escape much loss and worry—which is also loss—that they now suffer. That is, if they remember that in cool and even cold weather the strawberry plant is as hard to kill as a mule or cat, but that during the warm months, as easy as at other times it is hard.

North Carolina. O. W. BLACKNALL.

ONION GROWING.

Editor Southern Planter:

Swamp or muck lands, especially in the Southern States, appear to suit onions best. Land naturally too wet, that requires draining before it can be cultivated, has been found to answer an excellent purpose.

Some years ago I put this matter to a practical test. I had some rich swamp land that needed draining; a proper number of blind ditches were constructed; at a depth of about two feet from the surface water flowed in said ditches the most of the summer, but the surface was sufficiently drained to admit of thorough cultivation to the usual depth.

A portion of said land was planted to onions in early spring, using the sets or small onions grown the previous season. The water beneath kept the ground cool. As a result, these onions kept green and continued to grow about three weeks longer than onions planted on rich upland, and the yield, of course, was much larger.

SOME GENERAL INSTRUCTIONS—PLANTING THE SETS.

It is usually best to plant the sets, or small onions, in the fall—say, October. They sometimes do well planted as late as December. The sets thus get a start ready for early spring. But where the planting has been deferred, they generally do well when set out in early spring, soon after the frost leaves the ground.

The sets may be planted in drills about 18 to 24 inches apart and from 4 to 6 inches apart in the drill. The cultivation should be frequent and thorough. Permit no grass or weeds to occupy the ground.

Onions require a rich soil; stable manure is considered objectionable, as it has a tendency to foster the onion maggot. The following fertilizer may be used: Nitrogen, 4 per cent.; available phosphoric acid, 6 per cent.; and potash, 7 per cent., applied at the rate of from 900 to 1,800 lbs. per acre and mixed thoroughly with the soil.

Instead of the above, the following materials may be compounded and used: Nitrate of soda, 220 to 440 lbs.; acid phosphate, 450 to 900 lbs.; and muriate of potash, 125 to 250 lbs. It would be best to mix the acid phosphate and potash with the soil before setting out the onions, so as to allow them to become thoroughly dissolved and disseminated. Apply one half of the nitrate of soda as a top-dressing after the setting and the balance about three weeks later.

About June 10th corn, or other suitable crop, may be planted between every third or fourth row. Cultivate both crops thoroughly until the onions are drawn, when cultivation should be continued until the second crop matures.

One party recommends that, about the time the onions mature, a light roller, such as a barrel, be passed over the stalks to break them down. The onions should not be bruised; leave until the tops are dead, or about dead. Then remove to a loft constructed of lathing that will admit of good ventilation from below.

One party recommends placing the stems down and roots up. The stalks may be cut off to within one inch of the onions before they are so placed.

Cold storage, with the temperature constantly kept at about 32 degrees, will be best when practicable.

A well constructed house above ground, after the manner of a sweet potato house, would answer a good purpose, or a portion of the sweet potato house may be set apart for onions. Cellars are too damp for onions.

TO PREVENT SPROUTING.

After the onions are cured sufficiently, with a sharp knife cut off the hard lump at the bottom that supports the roots. I last winter—perhaps February—tested this method: I selected two onions, cut the roots from one and let the other remain. June 20th, the one that had been trimmed was in good condition, while the other one had long since been exhausted from sprouting. I had before tested the matter in a small way, and invariably found it to have a good effect. The best time to trim the onions can be decided by experiment. I believe any time in February, before the onions commence sprouting, will answer the good purpose. Cutting does not appear to induce rotting. The hard portions of the onions only should be cut, leaving the fleshy portion unmolested. Some experimenting may be necessary to determine the proper depth to cut, and the results should be noted.

Moore Co., N. C. BRYAN TYSON.

AWARDS TO AMERICAN EXHIBITORS

In Temporary Competition in Group VIII, Horticulture, at Paris Exposition, October 10, 1900.

CLASS 45—FRUIT TREES AND FRUITS.

First Prizes.

General Collection, Division of Pomology, U. S. Department of Agriculture:

Apples, crop 1899,	6 varieties,	representing	5 States.
" "	1900, 86 "	"	12 "
Pears, "	1900, 24 "	"	2 "
Plums, "	1900, 3 "	"	1 "

Collection of Apples, Pears and Plums, Crop of 1900:
New York State Commission.

Collection of Apples, Crab Apples and Pears, Crop of 1900:
Michigan Agricultural Experiment Station.

Collections of Apples, Crops of 1899–1900:
Illinois State Horticultural Society.
Missouri State Horticultural Society.

Collections of Apples, Crop of 1900:
Iowa State Horticultural Society.
Kansas State Horticultural Society.
W. G. Vincenheller, Pomologist Arkansas Agricultural Experiment Station.

Second Prizes.

Collection of Apples, Peaches and Pears, Crop of 1900:
C. S. Fosselman, Weiser, Idaho.

Collection of Apples and Pears, Crop of 1900:
Chas. P. Hartly, Caldwell, Idaho.

Collection of Apples and Plums, Crop of 1900:
I. B. Perrine, Blue Lakes, Idaho.

Collections of Apples, Crop of 1900:
Idaho State Horticultural Society.
North Carolina Department of Agriculture.
Ohio State Horticultural Society.
Virginia State Horticultural Society.
Joe A. Burton, Orleans, Indiana.
S. L. Lupton, Winchester, Virginia.
Geo. E. Murrell, Fontella, Virginia.

Collection of Pears, Crop of 1900:
D. K. Bell, West Brighton, N. Y.

SOME FRUIT STATISTICS.

In an article in *Harper's Magazine* for November, Mr. T Dreiser gives some figures as to the fruit growing industry of America, from which we take the following:

"Of strawberries, $80,000,000 worth are grown and consumed in the United States in a single year. The season begins in late November and ends the following August, and prices vary from one dollar to six cents a quart."

Of peaches, he says:

"In Georgia, the peach and not cotton is king. The whole section of the State, from Griffin to Smithville, thence to Albany, Cuthbert and Fort Gaines, is one unbroken stretch of fruiting trees. There is one man at Marshallville who individually controls 120,000 trees. One combination of men in Fort Valley controls 300,000 trees. In the neighborhood of this town are 700,000 trees in full fruitage. The little State of Delaware alone produces 4,000,000 baskets of peaches. Connecticut furnishes the same number. Maryland equals Delaware and Michigan surpasses both. One peach grower in Michigan has peach orchards which yield him $80,000 a year."

Mr. Dreiser estimates that $1,000,000,000 a year would be a moderate estimate of the fruit trade of the United States.

WHY FRUITS VARY.

Editor Southern Planter:

Not long since a correspondent asked me why specimens of the same varieties of fruits varied so much in size, color, flavor and season of ripening in different localities, and even where grown near each other.

The reasons are many, and dependent upon a great variety of conditions. Each kind of tree and plant that grows has some certain requirements that must be met. Some need a warm climate, and others one that is cool. Rich soil is essential to the proper growth of the tree or vine. Now, if the necessary conditions are not met with there will be a failure in one or more particulars, and in proportion as these conditions are unsuitable.

When we plant any fruit, as, for instance, the Ben Davis apple, in many different soils and climates, we may expect to see various results. And so we do. Its best development is in t e region of the Ozark plateau. There the tree flourishes, and the fruit attains its largest size, most brilliant coloring, and best flavor, because conditions are just right. Sweet cherries and European plums reach largest size and better color and flavor in Oregon and California than elsewhere on this continent. Cape Cod has just the soil, climate, and other conditions to produce the best cranberries in the country. The oranges of Florida are unequalled in flavor, and those of California in beautiful coloring and freedom from blemishes. The secret, if there is one, lies in the peculiar conditions of soil and climate. Where any kind of fruit does not do well, the sun shines too long or not long enough, the moisture is more than sufficient or insufficient, or there may be combinations of these factors. What will just suit one variety may be wrong for another. That is one great reason why we have such wonderful variations in a lot of specimens of a single variety, which are grown over a wide territory.

Another great reason for the variation in the size, color and quality of fruits is the proportion of available fertility in the soil. There may be too much of one element and not enough of another. To be more specific, we will take the one item of nitrogen. While nitrogen is a very important factor in all plant growth, indeed, it is absolutely essential to the life of every plant, there may be, and sometimes is, too much in the manures we apply to fruits. The tendency of all nitrogenous manures is to stimulate a rank, succulent, leafy growth, which is just what is desired when we are growing forage, and for the most part by the vegetable-grower also, but the fruit-grower wants fruit, and that, too, which is not only large but beautiful in color and rich in flavor. Nitrogen does increase the size to some extent, but an excess of it makes fruit coarse in texture, poor in flavor, and later in ripening

than is natural. It must be used with moderation upon the soil of all fruit plantations.

Phosphoric acid, which is another essential manure, is quite different from nitrogen in its action. It gives vigor to the woody structure of plants, and at the same time increases the yield of grain and materially aids in the development of seeds of all kinds, and also the fleshy parts of fruits to some extent.

But potash is the most important of all the plant foods to the fruit grower. A soil that is rich in potash is almost sure to be a good one for fruit. That is largely why those of the Pacific Coast are so well adapted to fruit. The mountains have been melting down for untold ages, and the soils which they have made on the slopes and in the valleys are heavily charged with potash. It gives large size to the fruit, and has a wonderful effect upon its color and quality. Although the red color in fruits is directly caused by iron in oxidized forms, the potash somehow, in the laboratories of the soil and the trees and plants, operates in such a way as to cause the iron to dissolve and become formed into the beautiful colors we see. If the red, pink, and purple paints of nature are largely made of iron, potash is the brush that is used by the sun in applying them. Therefore, not only do the varying proportions of iron and other ingredients of the soil have much to do with the variations in color that we notice so in fruits, but the potash has even more to do with them. And it is not the actual content of potash in the soil so much as the available amount. There is usually an abundance of iron and most other soil ingredients suitable to the needs of plants, but of available potash and phosphoric acid and nitrogen there is often a lack. Indeed, it is this lack which usually causes the great variations in the desirable qualities of fruits grown in a neighborhood. Common sense would therefore lead us to make up the deficit in the cheapest way possible.

Common farm manures are good because they contain all the elements of fertility that have been here mentioned and humus besides, but they are generally too scarce on the farm or too costly to purchase and haul very far. This forces us to resort to commercial fertilizers, and they are both excellent and cheap if wisely purchased and applied. Nitrate of soda, dried blood, tankage, etc., supply nitrogen; ground and dissolved bone and phosphate rock give the phosphoric acid; and the various potash salts in the market give the potash. Kainit is good, but muriate and sulphate of potash are cheaper.

H. E. Van Deman.

Mention the *Southern Planter* when corresponding with advertisers.

THE STRAWBERRY IN THE GARDEN.

Editor of Southern Planter.

The strawberry can be raised as easily as any garden vegetable, provided a few simple rules be persisted in. I say persisted in, because the average amateur gardener half kills the plants with coddling at first, and then, when the novelty wears off, leaves the grass and weeds to finish the job.

To begin with, the amateur, with eager mouth watering for the luscious ruby globes in prospect, is pretty apt to overdo the thing and make the soil too rich.

Only a small plat of ground and a small quantity of manure is needed to raise enough berries for a medium size family. Therefore, the temptation to over manure is almost irresistible. This may result in harm in various ways.

Unless the weather is favorable it is much harder to get a stand on soil heavily laden with manure of any kind. South of the Mason and Dixon line, where planting can be done in latest fall and even in the dead of winter, excessive manuring does little harm in this respect. For then there is plenty of time for its burning power to pass away by leaching before the hot, dry weather of late spring and summer. However, should planting be done at the South in early fall or late spring even more care is necessary in this respect than at the North.

Now the kinds of manure which we usually recommend are stable manure and wood ashes. These are obtainable by nearly all gardeners, and used in proper quantities they really form a perfect strawberry fertilizer. But stable manure in excessive quantities will make a most rampant growth of plants at the expense of fruit. Ashes furnish the potash, without which in plenty there cannot be the finest fruit. But a very heavy application of ashes has a caustic effect and hinders plant growth.

On good garden soil which has had regular applications of stable manure it is not necessary or even wise to apply any more preparatory for strawberries. If the plat has had no recent application of ashes, a pound to the square yard may be used, provided it is thoroughly incorporated with the soil. This precaution must always be taken no matter what kind of manure is used before planting.

A most effective way of applying manure is as a top dressing a few months before bearing time. This mode seems to be peculiarly suited to the strawberry plant. Its roots grow near the surface, and are, therefore, very quick to appropriate fertility thus applied.

A good way on rich soil is to mix in the ashes before planting, and after that apply no more manure until the following winter. Then about the season that freezing weather begins, say December 1st, apply evenly over plants and middles just enough stable manure to cover the ground. If no ashes or other form of potash were used before planting, one pound to the square yard may be evenly scattered over the whole plat.

Stable manure applied as above at the beginning of winter, answers a double purpose. It both fertilizes and protects. When plants are set late in the fall or in winter on stiff soil it is a good plan to at once protect them with coarse manure. While it is best to cover the whole plat, middle and all, if the quantity of manure obtainable is limited, it may be applied

just over and around the plant. Manure lacking, almost any kind of litter will answer. The object is to lessen the heaving of soil incident to frequent freezes and thaws. Be careful to see that this mulch does not cover the plant too deeply, and that most of it is raked off about the time that growth begins in spring; say March 1st to 15th in the central sections of the country, and earlier or later as you are South or North of that section. It must be remembered that in the far South no kind of covering can be used.

Stable manure or ashes not to be had, any fertilizer, rich in potash, will give good results.

But as in the feminine letter (if cynics are trustworthy witnesses) I have left the pith of this paper for the post-script. That is the mode of planting. A good way for the garden or for intensive culture generally, is to set the plants twelve to fifteen inches apart in the row, according as the variety is a moderate or rank grower, and to have the rows twelve to fifteen inches apart. Between every series of three rows have a two foot alley or walk way. All runners must be clipped off as fast as they come out.

The soil should be stirred often enough throughout spring, summer and fall to kill all weeds and grass before they come. Very shallow culture is best. If timely done it is surprisingly light. One hour's work a fortnight will keep in order a fair sized strawberry bed—if done fortnightly. But two hours a month will not; neither will a day's work every two months. Its the stroke in time that counts here above all places.

Kittrell, N. C. O. W. BLACKNALL.

GROWING ASPARAGUS IN WINTER.

The Missouri Experiment Station tested the forcing of asparagus in the open field in the winter time. Trenches are made between the rows of the asparagus by running a double furrow and making the trench uniform with a spade. When finished, they are three or four inches lower than the crown of the plant. The trenches are then covered with twelve inch boards supported on blocks on either side of the trench. The boards are covered with two or three inches of soil and then the whole bed is covered with five or six inches of horse manure. Steam is carried from the boiler to the central tunnel by a steam pipe, and from there forced into the tunnels by steam hose. The steam penetrates the soil of the beds, warming it to the desired temperature. Cutting was begun ten days after the steam was started. It was as large as that ordinarily produced in spring and much more crisp. After about a month the growth became weak. This test was started in November, and in December another test was started, but this time the cutting was more irregular and prolonged about two months. It being much colder, more steam was required. The method is considered practical for market gardeners. —*American Agriculturist.*

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter.*

THE PEACH TREE BORER.

The peach tree borer is perhaps responsible for the destruction of more trees in this State than any other insect. Recently I saw some trees in a five year old orchard being literally bored to death. Late fall is the best time to worm trees. The parent or adult insect appears in this State, as a rule, in June or later. The mother of the borer is a moth, but unlike most insects of this group, flies during the day. The wings of the male are transparent, and it resembles a wasp somewhat. The front wings of the female are not so transparent: the bodies of both creatures are of a steel blue color, with narrow yellow stripes on the male and a broad orange band on the female.

The first eggs are laid in June, but the egg laying continues until even late in September. They are deposited on the bark of the trunks of the trees from six to eighteen inches above the ground. A minute worm emerges from the egg in a week or ten days. It then works its way downward in the crevices of the bark, feeding on the inner layers.

It feeds until late fall, and passes the winter in the burrow where it happens to be, usually near or below the surface of the ground in the larval or "worm" stage. It revives and begins its feeding early in the spring, doing great damage before it reaches maturity in June or later.

The "digging out" method is the only practical remedy known, and unless you do this, you will not only lose many trees, but others will be reduced in vitality to such an extent that the fruit will be worthless. Young trees are more seriously affected than older ones. Thus a few old trees standing around, not wormed regularly, are veritable breeding beds, and furnish enough moths to restock an entire orchard. A single female is known to produce as many as 600 eggs.

The most satisfactory time is early in November, later in open falls. A knife or other instrument with keen edge and a sharp point is best adapted for worming. First have the earth taken away from around the trees to a depth of four, six or eight inches below the surface, at least two or three days before the "wormer" comes along. This allows the trunk to dry off, and, as a rule, the borer will show some sign whereby his presence can be detected. After the worming has been done, have the earth drawn back around the trees so as to protect the roots and trunks from winter freezes.—W. G. JOHNSON, Maryland State Entomologist, in *Country Gentleman.*

GROWING RADISHES UNDER GLASS.

The ideal soil for radishes is a well drained gravelly or sandy loam, but with care and watering a soil of heavy texture may be made to produce excellent crops. A temperature of 55 to 60 degrees through the day, with a drop to 45 degrees at night, is best. Radishes require the same general treatment as lettuce, and may be grown in the same house. As they mature in about half the time lettuce does, the seeds may be sown between the rows of young lettuce plants, and the product is out of the way when the lettuce begins to need the entire space.—*American Agriculturist.*

Live Stock and Dairy.

HORSES, MULES, CATTLE AND SHEEP IN VIRGINIA AND NORTH CAROLINA.

Statistics recently issued by the Department of Agriculture as to the number and value of the horses, mules, cattle and sheep in the country on the 1st January, 1900, as compared with the number and value on the 1st January, 1897, are wonderfully illustrative of the higher range of prices now prevailing, and may also be taken to be indicative of the much better breeding and quality of the animals, especially so in the States which, like Virginia and the Carolinas, show material reduction in the number of animals kept and yet a large increase in value.

In Virginia, the number of horses, mules, milk cows, other cattle and sheep, is less now than in 1897 by 88,315 head. Each kind of animal has decreased in number. Yet, notwithstanding this fact, the gross increase in value of the stock is $5,845,071 over the value in 1897.

In North Carolina, the number of horses, mules, milk cows, other cattle and sheep, is less than in 1897 by 173,500 head. Horses and mules have slightly increased in number, while cattle and sheep have largely decreased. The value, however, of the stock is greater now than in 1897 by $3,793,889.

We have not the statistics as to the numbers of hogs for these two States in 1900, but the increase in value of the hogs in Virginia in 1900 over 1897, is $258,706, whilst in North Carolina the increase in value is $200,733. We regret to see the reduction in numbers, and shall hope to see a change in this respect when the next figures are issued.

HOG RAISING IN THE SOUTH.

Editor Southern Planter:

I have read so much advice in your valuable paper to Southern farmers and truckers to try the stock business that I can resist it no longer, and have decided to try the business. Now, I want a little more information from you. Please advise me as to the best stock to start with. I want to try the hog first. I want to keep two or three breeds. First, I want the best hogs for pork; second, the best mode of feeding. I have a farm of 140 acres under cultivation, and can rent as many acres as I desire on the farm adjoining for raising hay and feed for my working stock, and can spare ten acres for raising feed for hogs the first year. How many acres would you put in peanuts, clover, or what kind of feed would you suggest to raise for them, and how many acres of each kind? I wish to have next spring about seventy-five pigs to raise for pork and want enough to carry them through the winter, and will increase every year. I have already a good stock of Cheshire sows, seven in number; will be ready for the boar about January 1st. Would it be well to inbreed them once for pork, or would it be best to get a boar not akin? Is the Cheshire a good pork hog?

A SUBSCRIBER.

Norfolk Co., Va.

Our correspondent is a trucker in the best truck growing section in the United States, and yet he evidently realizes that trucking *alone* is not the most certain road to prosperity. And he is right. Whilst trucking is at times a most profitable business, it is yet alone, in our opinion the nearest approach to gambling of any system of utilizing the land which can be followed. The trucking belt of the United States is so large, extending, as it does now, all the way on the Atlantic coast from Florida, almost in the tropics, to New York, almost in the North, that the chances for profit with the different crops are precarious. A frost in the far South, when the earliest crops are nearly ready for the Northern market, disarranges all markets through the season and makes profit for the more Northern truckers a very problematical matter. What Virginia and North Carolina truckers need is what our correspondent enquires after—a second string to their bow, which, whilst not preventing them growing the truck crops, for which their section is so well adapted, will yet give them the certainty of an income if the profit on the truck crop vanishes to zero. For this purpose probably no kind of stock is better fitted than hogs. There is always a demand for hog meat in the South. It is as readily salable as any product of the farm in every city in the South, and pork packers carrying on business in this city complain that they are always unable to secure sufficient home grown hogs to meet their requirements and have to import from the West. The advantage to truckers in keeping hogs is that they do not require a large area of land upon which to graze. A few acres set apart for raising the special crops needed to grow the hogs on, and a few bushels of corn to finish off and harden the meat, which can be easily raised on a small area of land, is all that is needed. No expensive buildings are required. Another advantage hogs have over other stock for truckers is that they will consume with profit all the waste products and culls from the truck patches. What the trucker and Southern hog raiser needs to get firmly fixed in his mind is that he must not attempt to grow and make hog meat on the same system as the Western man. He cannot do this and prosper. The hog in the hands of the Eastern and Southern farmer must be grown and made into meat largely on green crops. This means that the hog required must be a "meat" hog and not a "lard" hog—a hog that at nine months old will weigh from 150

to 175 lbs., and that to reach this weight has not had to eat more than a few bushels of corn during the last month of its life. The hogs to use for this purpose in the South are, in our opinion, the Berkshires, the Essex, and probably the Tamworths, though, as to the last named breed, we speak without having practical demonstration of its fitness, as hitherto very few of the breed have been introduced South. As to the Berkshires and Essex, they have so conspicuously demonstrated their fitness for our climate and for the system of feeding which must be followed to be successful that no hesitation need be felt in adopting either breed.

Our correspondent asks as to the Chesters being fitted to our climate and the conditions of feeding. Whilst the Chesters are fine hogs, they are more of the type of the "lard" hog than the "meat" hog, and their white skins are against them. The sun scorches them badly and makes them very subject to mange or scurf unless they have an abundance of shade. A black hog, like a black man, is best fitted to withstand the scorching rays of the Southern sun.

The problem of the crops to grow to raise the hogs we have dealt with repeatedly. What is needed is to secure green and root crops for the animals the year round as near as possible. Crimson clover and Sand vetch seeded in August and September, followed by winter oats and rye seeded in October and November, will supply grazing in late winter and early spring, and should be supplemented by turnips and artichokes. The artichokes should be planted in May and the turnips in August. Rape seeded in March or April will supply grazing in June. Cow-peas and corn and sorghum will supply pasture in July and August, and soja beans and cow-peas pasture in August, September and October, whilst rape seeded in July and August will supply pasture in October, November and December. Peanuts will also supply feed in the fall months where land is suited to their growth, and sweet potatoes may also be used to supplement the fall feeding. With this constant change of feed on crops, all of which the hogs will harvest for themselves, and which can be seeded or planted in succession as the earlier crops are consumed, there will be found little need for corn feeding, though some should be grown and fed for a few weeks before the killing of the hogs to harden the meat.

As to the acreage of each crop to be planted or seeded, this is a question more difficult of reply, as so much depends upon the fertility of the land, the method of working, and the seasons. Some land will grow twice or three times the weight per acre of green or root crops that other will grow. In the case of our correspondent, who suggests that he will set apart ten acres of land for these crops, we would divide this acreage into four lots, and so crop them as to have each lot available to follow the other as a pasture. The lots seeded in clover and Sand vetch in the fall can be cropped again with cow peas, sorghum or soja beans when these crops have been eaten, say, in May and June, whilst the lots seeded in cow peas, sorghum or corn can be followed in the fall with crimson clover, vetches and rape.

Replying to the question of inbreeding the Chesters, we would say, do not do so, but use a boar not related, even though he should not be a Chester.

SHEEP IN LARGE FLOCKS.

Some Diseases of Sheep.

Editor Southern Planter:

Dr. Oliver C. Wiggin, writing to the *Country Gentleman* in 1892, says: "I intend to increase my flocks indefinitely—into thousands, if practicable."

Mr. B. E. Rice, in the *National Stockman*, says: "On the stock ranges and ranches of the West the flocks run into thousands; why not here?"

It is certainly practicable to keep a flock of sheep numbering several thousands in Virginia and Ohio. It is done in Australia, on the fertile pampas of South America, and, as Mr. Rice says, on the sheep ranches of the great western plains.

Where land costs nothing, and pasturage nothing more than the wages of the shepherd and the hut-keeper, the flockmaster can afford to lose a large percentage of his flock and still make the business profitable; but in Virginia and Ohio, where the conditions are entirely different, I think it will be found that keeping such large flocks is too hazardous.

Daniel Sterling, of Wyoming county, one of the largest sheep raisers of his time in Northern Pennsylvania, found it necessary to keep his sheep in small flocks of not more than 100, and each flock was pastured in a separate field during summer and sheltered and fed in separate barns during winter. The different flocks were never allowed to congregate together, to crowd the weak, to trample on the lambs, to breed disease and communicate it to each other.

Lack of proper care and feeding will no doubt hasten the development of disease already brooding in the system, and general debility, produced by starvation and exposure to storms, will breed disease just as famine breeds pestilence; but as the vast amount of combustible materials collected closely in the compactly built city furnishes the fuel for a great conflagration, so a multitude of animals in one flock furnish a favorable field for the harvest of death.

In India, where immense crowds of people assemble to celebrate some of their national or religious festivals, the Asiatic cholera frequently breaks out with

great violence, and they die like "rotten sheep." Armies are usually composed of men picked for their strength and robust health, but they are often decimated and rendered inefficient by some contagious disease.

In the report of the Department of Agriculture for the year 1866, it is stated that in some large flocks of sheep numbering 1,500, 500 have died in a single year from swelled head. In Australia, where from 1,000 to 8,000 have been kept in a flock, great losses have been sustained from scab, foot rot, and other contagious diseases.

The Rev. G. D. Carrow, a missionary in South America, said of the great herds of sheep on the pampas: "If flocks are allowed to exceed 1,000 or 1,500, the proportion of loss in lambs is largely increased. The very young and feeble lambs are much more likely to lose their mothers and perish for lack of nourishment, or be trodden to death beneath the feet of the older and stronger sheep." [A flock of sheep on the pampas of South America means 1500 usually.—ED.]

R. H. Saunders, in the report of the Agricultural Department for the year 1877, says: "I think the cause of thread worms in the stomachs and lungs of sheep is attributable to keeping too many sheep on the same pasture for several years in succession."

The diseases of sheep are as numerous as the diseases of the human family, and a list, with a description of them, would fill a volume. The one most fatal and dreaded in England is the "rot," or "liver rot," or "flukes," or "fluke worms," as it is called, and by most veterinary surgeons considered incurable. It has not yet become very prevalent in the United States, but in England it has sometimes destroyed from one to two million of sheep in a single year. It is caused by parasites, or living beings, in the liver and gall of sheep. They are flat shaped like a leaf, and some of them nearly an inch in length. They breed in snails which inhabit low, wet ground and pools of stagnant water, and water that is not stagnant; obtain a lodgment in the stomachs of sheep when drinking the water; from the stomach find their way to the liver, and after a time cause the death of the afflicted animal.

The disease has been as destructive in Australia as in England, but is seldom prevalent there in the salt marshes along the sea or the volcanic elevated regions of the interior, where there is but little rain and scarcely any pasturage but sage brush.

Sheep may become acclimated, and do fairly well on level, low lying districts, if not wet and swampy, or containing puddles of water where the parasites are bred by the snails; but do best in a hilly country, where the soil is dry and the air pure. Thorough drainage of lowlands is absolutely necessary to make them safe for profitable sheep raising.

The disease most prevalent among sheep in the United States is the scab—a disease of the skin, caused by three different species of parasites, or living beings, which burrow into the skin or live on the outside among the scabs they create by their biting and the sheep's rubbing to rid themselves of their tormentors.

The minute beings belong to the same family that includes the itch mite of the human family. One species attack the head of the sheep, another the body, and the third the feet. In form they resemble the spider, and when placed on a sheet of white paper can be discerned by the naked eye. Each female lays about ten eggs at a time, which, in fifteen days from the date of their deposit in the nest, are full grown insects, and commence the propagation of another generation of sheep tormentors.

The disease is curable only by destroying the pests which produce it. Dr. Law's prescription is as follows: "Wash with soap suds to remove scabs and crusts; then apply thoroughly with a brush, oil of tar, 1 oz.; whale oil, 20 oz. (or ½ lb. each of tar and sulphur), and 1 lb. each of soap and alcohol."

"For sheep with heavy fleeces," he prescribes a bath or dip composed as follows: "Tobacco, 16 lbs.; oil of tar, 3 pints; soda ash, 20 lbs.; soft soap, 4 lbs.; water, 50 gallons. Boil the tobacco and dissolve the other agents in a few gallons of boiling water; then add water to make up the 50 gallons, retaining a temperature of about 70 degrees. This will suffice for fifty sheep. Each sheep is kept in the bath three minutes, two men meanwhile breaking up the scabs and working the liquid into all parts of the skin. When taken out, the sheep is laid on a sloping drainer and the liquid squeezed out of the wool and allowed to flow back into the bath. A second and even a third bath may be necessary in inveterate cases. For newly shorn sheep, oily applications are better, being less liable to be washed off by rains. One part of the oil of tar to 40 parts of castor oil, or lard, will usually suffice, but sulphur may be added if desired."

J. W. INGHAM.

[The Tobacco Sheep Dip made and sold by Laidlaw, Mackill & Co., of this city, is one of the best Dips made for scab and other insect pests of sheep and cattle.—ED.]

The pig has the reputation of being able to produce a greater weight of meat and in a shorter time from a certain quantity of food than any of our other farm animals. As illustrative of this, it may be mentioned that while a well fed, comfortably quartered pig will increase in weight at the rate of one pound for every five or six pounds of dry food which it consumes, an ox requires to consume from twelve to fifteen or eighteen pounds of dry food (depending on the material used) in order to produce the same weight of meat.

BUTTER FOR THE PARIS EXPOSITION.

Editor Southern Planter:

The writer found out that the Department of Agriculture at Washington was trying to have the dairy interests of the United States represented at the Paris Exposition, and so asked to be allowed to make a contribution in the way of a package of butter.

About September 1st, a tub was forwarded to the Department at New York, containing twenty pounds, with a sample of same make for examination in New York. Mr. R. O. Pierson, in charge of the Dairy Division, in the absence of his chief at Paris, reported the condition of the butter in New York as indicated by the sample accompanying the package as perfect, except flavor, and scored 95.

How Made.

The cream was separated to about 40 per cent. fat, cooled from the separator from about 85° F. to about 38° F, by using a Champion cooler filled with ice and water, which was kept constantly stirred, while the cream was running over it.

The cream was then pasteurized by heating to about 155° F., holding about twenty minutes, and cooling as quickly as possible—first with spring water to about 70° F., then with ice water to 60°. A starter was then added, about ten per cent. of the weight of the cream, which was prepared from Hansen's Lactic Ferment. The cream was held as nearly as possible at 60° F. while ripening, and in about eighteen hours was found to have ripened sufficiently, it having a nice, clean, acid flavor at that time, and being considerably thickened up, due to the action of the lactic acid developed on the casein.

The cream was then at once chilled to about 45° F., and held at that temperature for several hours before churning. The churn was prepared by first scalding, then cooling, first with spring water at about 60° F. to 70° F., afterwards with ice and water, so as to thoroughly cool the sides of the churn, which was of the square box type. The cream was then put into the churn, no color being used, and the churn started. The churning was continued for about forty minutes, when the butter granules were large enough to stop the churning, temperature being about 53° F. at finish. The granules were nearly one-fourth the size of wheat grains when the butter was taken from the churn. The butter was washed three times with water about 50° F., and something more water than there was buttermilk. After allowing the water to drain from the butter in the churn for about half an hour, it was taken from the churn and put on the butter worker. It was salted at the rate of three quarters of an ounce of salt to the pound—a little low for our markets, but was what was wanted by the Department.

It was worked about five revolutions of the butter-worker and put into the refrigerator to allow the salt to become dissolved, and after about six hours it was taken from the refrigerator and worked to a finish, about ten revolutions of the butter worker. By working twice it is not necessary to work so much, and there is less danger on that account of injury to the grain of the butter. It was then packed in a twenty-pound tub, which was lined on the bottom and sides with parchment paper, and on top with cloth circle, over which a thin paste of salt and water was put, just enough to cover the butter pretty thoroughly. The tub was then nailed up, covered with a special burlap covering, and put into a box for further protection, and expressed by night train to New York city for shipment.

The writer was fully aware that the weak point in this butter was flavor; not that its flavor was in any way off, but it lacked flavor; what it had was very sweet and nice. The package was awarded a silver medal at Paris.

The writer would like to acknowledge valuable services rendered by Mr. W. G. Chrisman, a student who has been pursuing dairy work specially for the last six or eight months.

V. P. I. Creamery, Wm. D. Saunders.
Exp't Station, Blacksburg, Va.

SALES OF SHORT-HORNS AND HEREFORDS.

The prices paid at Kansas City during the past month for Short horns and Herefords indicate no abatement in the demand for cattle of these breeds. Moreover, values were strongly held on top stuff, and a sensational price was paid for a sensational animal. Mr. Frank Rockfeller bid $5 050 for the yearling Hereford bull Columbus 17th, half brother to Dale, bred and fitted by Mr. Benton Gabbert. A number of times the $1.000 notch was reached During the seven days' sales—three devoted to Short horns and four to Herefords—329 head brought an average of $318 91. The 144 Short-horns averaged $316 90; the 185 Herefords averaged $320.46. The 47 Short horn bulls averaged $305 64; the 97 Short horn females averaged $322 37. The 98 Hereford bulls averaged $339 69; the 87 Hereford females averaged $298.79. The Hereford average is about $2 per head higher than at the association sale at Kansas City last year.

The new sale pavilion was crowded at all times. Bidding on the best lots was lively, and the cattle were widely distributed. Altogether, results were very satisfactory. As is usual in such sales some cattle sold below the value fixed on them by their owners, some even below the private bids that had been made for them at home; but values held strong throughout and the general results must be characterized as highly gratifying. These sales were under the auspices respectively of the American Short-horn Breeders' Association and the American Hereford Breeders' Association.—*Breeders' Gazette.*

FATTENING STEERS WITHOUT HOGS.

February 13, 1900, the Kansas State Agricultural College began fattening eighty head of steers to test the value of several different methods of preparing feed for steers where, on account of cholera, hogs could not be used to follow and save the droppings. The steers were divided into four lots of twenty each. Lot one was fed shelled corn and whole alfalfa hay, lot two shelled corn and alfalfa hay cut in inch lengths, lot three corn meal and whole alfalfa hay, and lot four corn meal and alfalfa hay cut in inch lengths. With all lots the hay was thrown in the bottom of the grain boxes, the grain placed upon the hay, and the two carefully mixed. Salt and water were kept before the steers all the time.

The average weight of the eighty head at the beginning of the experiment was 1,036 lbs. per steer. The steers were fed 116 days and were then ready for market, averaging 1,307 lbs. each—an average gain of 271 lbs. each, or an average daily gain of 2 34 lbs. per steer.

The steers required an average of 747 lbs. of grain and 385 lbs. of hay for each 100 lbs. of gain. This is much below the average amount of feed required to make 100 lbs. of gain.

The steers ate an average each of 19.4 lbs. of grain a day. This is a low amount of feed for the gain made.

The gains for the whole feeding period are as follows:

	Gain per steer.
Shelled corn, whole hay	262 lbs.
Shelled corn, cut hay	257 lbs.
Corn meal, whole hay	273 lbs.
Corn meal, cut hay	293 lbs.

Average gain of steers fed shelled corn, 260 lbs each. Average gain of steers fed corn meal, 283 lbs. each. This shows a gain of 8.8 per cent. from grinding. The steers fed shelled corn required an average of 780 lbs. of grain to make 100 lbs. of gain, while those fed corn-meal required an average of 718 lbs. of grain for 100 lbs. of gain.

But little was saved in cutting the hay, the average gain of the steers fed whole hay being 286 lbs. each and those fed hay cut 275 lbs. each—a gain of 2 6 per cent. from cutting.

There is a shortage of both grain and roughage in Kansas this year, and every feeder should get the most possible out of his feed. One experiment does not settle any question in feeding, but may indicate what is probable. The results obtained in this experiment seem to indicate that feeders can get considerably more gains from their feed by mixing the grain and hay, as considerably less than the usual amount of grain was required in this feeding to make 100 lbs. of gain. Our explanation is, that where grain is fed alone much of it is not brought back to the mouth again, while if the grain is mixed with hay, all of it gets the benefit of thorough mastication in the cud. There is less difficulty from scouring where grain and hay are fed together.

The steers were sent to the Armour Packing Co., Kansas City, for slaughter test, and their report is as follows: "The cattle dressed out 59 3 per cent. of live weight, the yield of fat 6.7 per cent. The carcasses cut bright, were of good color on the outside and made good, clean, bright looking, well-covered beef. Our buyers consider that ground corn and alfalfa is the best feed for cattle."

The eighty head made an average gain of 7.5 lbs. for each bushel of food eaten, and ate 28.8 lbs. of hay with each bushel of grain.

The gain from the different methods of feeding was as follows:

	Gain per bushel of grain (56 lbs).
Shelled corn, whole hay	7 1 lbs.
Shelled corn, cut hay	7 3 lbs.
Corn meal, whole hay	7.4 lbs.
Corn meal, cut hay	8 2 lbs.

Experiment Station, Manhattan, Kas.

ALFALFA, SOY BEANS AND SKIM MILK AS FEEDS FOR HOGS.

A good average daily gain, to put it in round numbers, for a hog weighing from 125 to 225 pounds, fed corn or kaffir alone, is a pound a day. When alfalfa is added, one and one half pounds per day is a fair gain, or two to two and one half pounds are put on very readily when soy bean or skim milk is fed in addition to kaffir corn. These acts are appreciated by those who know that such feeds as alfalfa, soy beans, etc., tend to produce more lean meat, insure a rapid growth in young pigs that would not do well on corn alone, and that these are the cries of the hog market—young hogs and less lard. The American hog takes a back seat in the English market when the Danish and Canadian hog is there. The Dane feeds his pigs skim milk and barley. The Canadian feeds corn to some extent, but largely peas and beans. The Dane gets a third more for his bacon than we do, and the Canadian receives from one half to two dollars per hundred more live weight for his pea and bean fed hogs than we do for our corn fed stuff. However, we may make more money in the transaction than either the Dane or the Canadian, but our experiments show that it will pay to imitate them to some extent. We Americans should appreciate good lean bacon as well as the Englishmen, but as long as we continue to feed corn alone we will not solve the problem Pat was after when feeding his pig for streaky bacon for his own use. He fed the pig well one week, and the next he did not feed it at all and when asked why he did so, responded: "Sure and I want a streak of lean and a streak of fat all the way through." The lean producing element is not in corn.—J. G. HANEY, in *Breed r's Gazette.*

Gaited Saddle Mare.

A subscriber asks where he had better advertise to secure a gaited saddle mare.

An advertisement inserted in the *Kentucky Live Stock Journal*, Louisville, Ky., or *Turf, Field and Farm*, New York, would be likely to bring replies.—ED.

The Poultry Yard.

HOW TO MAKE HENS LAY.

We are almost daily in receipt of letters asking us to tell people why their hens don't lay in a mild open fall like we are having. It is a difficult matter for us to reply to these questions when we know nothing of the conditions of the hens themselves or of their surroundings. We can tell farmers what are the conditions necessary to egg laying in the fall, and it must then rest with them to see that these conditions are complied with. One of the first requisites for egg laying is that the fowls themselves must be, if pullets, sufficiently matured to be layers. This is not altogether a matter of age, as some breeds mature much earlier than others. The small light breeds, like the Leghorns, will mature a month at least earlier than the large heavy breeds, like Brahmas or Cochins. Few pullets of any breed are sufficiently matured to lay before they are five mouths old, and six months is more generally required to be reached. If the pullets, therefore, were not hatched early, so as to be now of this age, it is unreasonable to expect them to lay. Another thing required is that they shall not only be old enough but also be well grown and full of life and vigor, but not fat. Too often the abundance of corn about in harvest time causes the birds to become too fat. If the hens are more than year-old birds then they must not only be fully through the moult but have had sufficient time since completing the moult to recuperate their strength and vigor. The work of growing a new coat of feathers is one of an exhausting character and largely reduces the vitality of the birds. They, too, must not be fat or they will not lay. Probably the most common cause for non laying, if the pullets are mature enough and the hens well over the moult, is improper feeding and housing Feeding corn alone is too often the rule on the farm. Now corn, whilst an excellent feed for making fat, is not a good egg producing food. To make eggs the hens must have animal food; that is to say, food rich in protein. Meat scraps and green bones with clover pasture or clover hay and wheat and corn mixed will make hens lay before any other diet, if all other conditions are favorable. This matter has been settled by numerous experiments made, of which we have reported several, and in every case the birds fed green bone began laying much earlier than those fed any other rations. This meat and bone ration should be fed at the rate of one ounce per hen every other day. If you are so placed that you cannot get green bone and meat scraps then feed dry bone and meat meal in the place. Cow peas and soja beans make the nearest substitute for bone and meat scraps, and are excellent feeds. See also that the house in which the hens roost is dry and free from cold drafts, and that the fowls are kept active. Do not throw down the grain feed in a heap or feed it in a trough, but scatter in leaves or straw and litter and make the hens work for it. When the weather becomes cold feed a warm mash of bran and corn meal first thing in the morning, mixing with this the meat scraps and bone meal.

CLOVER AND CORN.

Clover as a flesh former, an albumen producer and a lime supplier, is one of the best articles of food, yet inexpensive to the farmer. While it is said half a ton of corn produces less than a pound of lime, white clover contains thirty times as much, and red clover twenty eight. Its introduction as an article of food has materially reduced the cost of keeping, and at the same time largely increased the egg production of the flock. The great trouble has been that we have fed hens, from sheer force of habit, in the most expensive manner possible. The economy of feeding is just opening the eyes of breeders to the possibilities of the business.

As to the difficulty of obtaining clover hay, every one must consult his own circumstances and conveniences, still, we venture the opinion that there are but few poultrymen who cannot procure a half ton of clover hay for the purpose mentioned. Throughout nearly all sections of the country the second crop is secured in September, and in most years is abundant. It is better furnished with leaves, has less stalks, and properly dried, will make just the green food required by fowls.

Throughout the great West and South corn is so cheap, so convenient, and so fattening that it naturally leads the breeder to use it, little thinking that while it fattens, it fails to stimulate egg production. Fowls having large range in winter in the sections of country named, find a great amount of other food, also such materials as nature demands to make up the variety which goes to building up the body and furnishing the egg organs with the ingredients for forming eggs. This leads the casual observer to the conclusion that corn is as good as any other grain. Whereas, if his fowls were closely confined, as is often necessary with the regular and careful breeder, or when the long, steady cold weather makes confinement imperative, he would soon learn that a strictly corn diet would retard and suspend egg production.

In this connection, let us again remark that the greatest profit through winter eggs is derived by securing early pullets to do the laying Such pullets as have matured sufficiently to begin laying in the fall, before the cold weather sets in, if fed properly and not suffered to become too fat, will lay throughout the winter season.--*Fanciers' Gazette.*

Mention the *Planter* when corresponding with advertisers.

PRACTICAL ESSENTIALS IN SUCCESSFUL POULTRY RAISING.

When the Jersey cattle fever first became epidemic in this country the rage was all for "solid color." A cow that would bring fifteen hundred dollars if possessed of a solid color and other required "points," would be worth no more than a hundred or so if she had a little white mixed with the other color of her hair. This condition of affairs prevailed for many years, but is decidedly changed at the present day. Now the fancier of Jersey cattle is more concerned with the amount of butter he can secure from his cows than with any other feature connected with them. He still tries to get a solid colored animal if he can, and one that excels in other desired characteristics, but the yield of butter is the paramount interest in his breeding. He has made it one of the "fancy points" of his work. The millionaire breeder of Jerseys is not anxious to secure an added yield of butter because he will thereby get more money from his herd, but he is after the satisfaction of securing a greater and still greater yield of butter by judicious breeding. To breed a Jersey cow that shall make a yearly test of a thousand pounds of butter in one year is an honor eagerly sought by men to whom the value of a thousand pounds of butter is of no moment whatever. It is the incentive of securing greater production than others can secure that urges on their efforts, and the result is greatly increased value in the race of Jersey cattle.

It seems to me that the same interest could well be applied to poultry breeding. I have always contended that there need be no antagonism between the fancy and the practical in poultry culture, and I am of the same opinion still. I believe that the beautifully formed Plymouth Rocks or Wyandotte from a fancier's standpoint, is the most profitable bird from the market poultryman's standpoint. The Leghorn of the most characteristic, sprightly shape is the bird that will make the egg basket overflow the quickest. The fancier has made our poultry what it is to day—a steady improvement, both in the fancy and practical side, to the poultry of the past. But this has come about, not so much because the fancier cared particularly whether the practical side were benefited or not, but because, as I have said, there is no real antagonism between the fancy and the practical, so that in aiming for excellence in fancy points, the practical side has been added to.

But when it comes to increased egg production, a distinct effort must be made outside of mating for fancy points. There must be a mating here for larger results just as there is a mating for larger results in the dairy world, and it can be done while attending carefully to standard points. Now, it seems to me that this striving to reach a large egg yield ought to give an added zest to the fancier's work. He will have all the pleasure that he has ever had in breeding for points, and in addition can have the same keen satisfaction that a Jersey breeder experiences in breeding so skillfully as to secure large production. The Jersey cow that has made fourteen pounds of butter in one week is called a "tested" cow, and she and her descendants thus acquire distinction above their fellows. Why may we not set the "tested" mark for the hen at two hundred eggs per annum?

All credit to the fancier for what he has done for American poultry—he has made it what it is. It now remains for him to put another element of great value into his work by increasing the egg-production of the fine specimens he sends out, and in the case of some varieties, by increasing the size of the egg. It seems to me that these points ought to appeal to a thorough fancier spirit. Breeding for them requires skill, judgment and patience, and these give zest to the fancier's work.—*Reliable Poultry Journal.*

CHICKENS vs. HOGS.

Orchardists generally claim that the hog is a great insect destroyer. It eats the fruit that prematurely drops which is generally considered wormy. Perhaps on closer examination we find that a considerable portion of the dropped fruit contains no worms. While the fruit was still hanging on the trees the matured worms escaped.

Some careful observations were made by experiment stations by placing several bands around the trunks of trees. They found that the upper bands caught about twice as many worms as the lower ones. This indicates that twice as many worms crawl down the trunk as up. Chickens in an orchard eat a great many worms before they reach their hiding place.

Turkeys are recognized as grasshopper exterminators. Chickens have a reputation for scratching; they do not perform this work in vain. Their object is to be paid for their daily labor. Their inclination is not to destroy the crop, as we often imagine. The trouble is the old hen lacks judgment when, where and how to scratch. Chickens imagine that the soil is everywhere filled with insects, hence they dig away without any respect to the growing crop.

We should induce the chickens in the fall and spring to scratch among the trees, bushes and vines. In early spring how anxiously they turn over all leaves and rubbish. In many instances, they do a perfect job of hoeing. Not only do they eat many insects that do damage above and below the ground, but by their continual scratching they may interfere with the development of the spores of fungous diseases

The old hen is worth more than a hog as an insect destroyer. The hen is considered a bigger nuisance than she really is. If we would only remember that she takes the place of Paris green and sulphate of copper, and when her work is done confine her safely as we store away the Paris green, then she would no longer be considered a nuisance. From many quarters the complaint comes of birds decreasing and insects increasing. We can partly remedy this by having our plantations so arranged that at stated times poultry can occupy certain portions of our ground.—A. Shirer in *Nat. Stockman, Ohio.*

If the hens stop laying at this season of the year, as is not unusual, a change of feed for a few days will often start them into business again. Always, and with any variety of hens, variety in feed brings the best results. Appetites are renewed and new elements supplied.

The Horse.

THE ELLERSLIE STUD, 1900.

STALLIONS.

1. Imported Charaxus (1876), bay horse, by Distin, dam Sappho, by Kingston.
2. Eon (1886), by Eolus, dam War Song, by War Dance.
3. Imported Fatherless (1890), by Isonomy, dam Orphan Agnes, by Speculum.
4. Aurus (1895), by Eolus, dam Sample, by imp. Rotherhill.
5. Aureus (1896), by Eolus, dam Sample, by imp. Rotherhill.

BROOD MARES.

1. Tillie Russell, by Scathelock, dam Daisy, by Cracker.
2. Cerise, by imp. Moccasin, dam Lizzie Lucas, by imp. Australian.
3. Vigiline, by Vigil, dam Ellen Alice, by Barney Williams.
4. Lady Grace, by Romney, dam Grace Darling, by Jonesboro.
5. Rozeta, by Incommode, dam Mary P., by Gilroy.
6. Sample, by imp. Rotherhill, dam Satilla, by imp. Buckden.
7. Guava, by imp Eothen, dam Revolt, by Lexington.
8. Mermaid, by imp. St. Blaise, dam Palmetto, by Virgil
9. Eonette, by imp. Eothen, dam imp. Castagnett, by Marsyas.
10. Little Alice, by Lisbon, dam Flirtation, by imp. Glenelg.
11. Ora Olive, by Buchanan, dam Mary Louise, by Luke Blackburn.
12. Guara, by Locohatchee, dam Guava, by imp. Eothen.
13. Eola, by Eolus, dam War Song, by War Dance.
14. Elsie, by Eolus, dam Calish, by imp. Phaeton
15. Ada Belle, by Eolus, dam Jennie Belle, by imp Hurrah.
16. Clash, by Eolus, dam Calash, by imp. Phaeton.
17. Helmwind, by Eolus, dam Helen, by Alroy.
18. Ninone, by Eolus dam Ninon, by War Dance.
19. Generine, by Eolus, dam Genere, by Springbok.
20. Meta Russell, by Eolus, dam Tillie Russell, by Scathelock.
21. Vigill, by Eolus, dam Vigiline, by Vigil.
22. Lizzie H., by Eolus, dam Cerise, by imp. Moccasin.
23. Young Grace, by Eolus, dam Grace Darling, by Jonesboro.
24. Merry Maid, by Eolus, dam Mermaid, by imp. St. Blaise.
25. Niola, by Eolus, dam Nita by imp. Billet.
26. Sanci, by Eolus, dam Sans Souci, by imp. Bonnie Scotland.
27. Eocene, by imp. Charaxus, dam Eola, by Eolus.
28. Eolide, by imp Charaxus, dam Eola, by Eolus
29. Eostre, by imp. Charaxus, dam Eolee, by Eolus.
30. Eona, by imp. Charaxus, dam Eola by Eolus.
31. Eonisse, by imp. Charaxus, dam Eola, by Eolus.
32. Ninos, by imp. Charaxus, dam Ninone, by Eolus.
33. Cara Belle, by imp. Charaxus, dam Ada Belle, by Eolus.
34. Mourie, by imp. Charaxus, dam Jennie Keene, by Eolus.
35. Ellerslie, by imp. Charaxus, dam Eolee, by Eolus.
36. Aurie, by Eolus or Eon, dam Sample, by imp. Rotherhill.
37. Eliza Russell, by Eon, dam Tillie Russell, by Scathelock.
38. Network, by Eon, dam Eonette, by imp. Eothen.
39. Roselia, by Eon, dam Rozeta, by Incommode.
40 Aurine, by Eon, dam Sample, by imp. Rotherhill.
41. Winter Cherry, by Eon, dam Cerise, by imp. Moccasin.
42. Rosalina, by imp. Masetto, dam Rosaline, by Commodore.

When sending us the foregoing information, Capt. Hancock added, "Ellerslie now claims the sire of the fastest horse Charentus, for 1¼ miles in the world, and the fastest horse (Fatherless) for 1⅝ miles ever run in England, whilst no one's horse was ever faster or larger than Eon." This is a good record for a Virginia stud.

NOTES.

One of the best known and most progressive citizens of the thriving city of Winston, N. C., is Mr. R. J. Reynolds, the founder of the great manufacturing concern known as the R. J. Reynolds Tobacco Company, whose goods are known all over the East. Years ago Mr. Reynolds branched out as a breeder of live stock and founded Skyland Farm, a nice estate about one mile east of Winston, where at different times Mamie Woods, 2:20, one of the sensational two-year olds of her day, and other well bred trotters have found a home. For some years the German coach stallion, Young Matador, headed the stud, and some good specimens of his get are now owned on the place. Fresh from Cornell University, Mr. D. J. Lybrook, the nephew of Mr. Reynolds, has been installed as the head of affairs at Skyland, and from now on scientific methods will be combined with practical ideas in farming. The handsomest animal on the place is a large bay filly, two years old, by Young Matador, dam by a son of Woodburn Hambletonian, second dam a fine combined saddle and harness mare. This line of breeding is in keeping with Mr. Reynolds' ideas, but young Lybrook fancies the gaited saddle horse, and will probably secure a first class stallion of that breed and place him in the stud.

Mr. James Cox, of the Belgravia Farm, Mt. Jackson, Va., has gelded the sixteen year-old bay horse, Belview, 2:30½, by Belmont, out of Lady Simmons, by Volunteer, and will drive him on the road. The son of Belmont was kept in the stud for a number of years at Belgravia, and sired some good colts. Belview is a horse of good appearance, bold, lofty action and

very fast, having trialed in 2:23¼, driven by his owner, who is an amateur. Kelly, 2:27, the full brother to Expressive, 2:12½, by Electioneer, out of Esther, thoroughbred daughter of Express, now heads the Belgravia stud, and the bay stallion is a prime favorite with Mr. Cox. But few of Kelly's colts have been handled, but they are all good gaited and show speed. The oldest of his get is the bay gelding McChesney, who won several races this season, and paced to a record of 2:19¼, which does not indicate his speed limit.

Of the thoroughbred sires kept for service in Virginia, whose two year old sons and daughters have been returned winners this season imp. Charaxus is credited with Col. Padden, Tootsie Green and Gracious; Aloha with Robert Waddell and William Ack; Blitzen with Light Ball; Chorister with Annie Thompson and Dr. Barlow, and Eon with Eonic.

Mr. W. W. Sanford, the owner of Woodley Farm, a fine estate of over 500 acres, near Madison Run, Orange county, spent a couple of days here recently. Mr. Sanford was one of the officials at the Deep Run Hunt Club race meeting. Shorthorn, Polled Angus and Jersey cattle are bred at Woodley Farm, which was formerly the home of the thoroughbred stallion Dangerous, by Sensation, while numbers of fine hunters, saddle and harness horses have been sold from there and found favor on the prominent markets of different sections. Recent sales from Woodley include a grand looking pair of coach horses purchased by Boston parties. They were bay geldings, both trotting bred, and while of large size, were handy and able to show considerable speed at the trot.

Mr. S. B. Atwell, of Winchester, Va., owner of the bay mare Edna Stevens, 2:26½, by Esperanza, out of Lou Graham, by Melville Chief, the sire of Clipper, 2:19¼, is well pleased with her performances this season. She won three races and was placed in others. Edna Stevens is seven years old, and was bred by Mr. L. Banks Holt, of the Alamance Farm, Graham, N. C., who owns her dam Her sire, Esperanza, the son of King Wilkes and Englewood, sister to Wedgewood, 2:19, was purchased as a two year old by Mr. Junius H. Harden, at the Allen Farm, Pittsfield, Mass., and brought to Graham, where he was kept in the stud for several seasons and then sold to other parties, and has since been gelded.

The annual fall race meeting of the Deep Run Hunt Club took place at the grounds of the Club on Saturday, November 17th, and was well attended. Weather conditions were favorable, and clean sport of the exhilarating kind were features that pleased the crowd. The programme was made up of three races on the flat, a steeplechase, and concluded with a high jumping contest. The winners were King's Pride, Shotbelt and Ajax, while Virginia C. won the jumping contest over 17 entries. Under the direction of Secretary P. A S. Brine affairs worked smoothly, and a successful issue was the result. There is no more popular or better known organization of its kind in the South than the Deep Run Hunt Club, whose affairs are conducted on a broad, liberal basis, and it has the support and patronage of the best men in the community.

Dr. L. L. Staton, of the Shiloh Stud Farm, Tarboro, N. C., has lost by death, due to age and general debility, the bay stallion Ben Himyar, foaled in 1879, and bred by Major B G Thomas, Lexington, Ky. Ben Himyar was a full brother to the famous sire Himyar, by Alarm, out of the noted brood mare Hira, by Lexington. His opportunities as a sire were limited, but he got May Bird, Aida, Ben Boy, May B, and others.

BROAD ROCK.

GOT RID OF THE WHITE HAIR.

Some time last year I wrote to *The Gazette* inquiring if any way was known to remove white hair on horses, caused by harness or saddle gall. Answer was that there was no way known except to cut out the white spot. We had a fine mare that we were working; both of her shoulders were galled, and before we noticed it, the white hair had come out on a spot as large as the palm of one's hand on each side. When I heard that no remedy was known, I continued applying lard and axle grease while I worked her. After awhile all of the white hair came off; then I turned her out, continued applying the grease, and now the naturally colored hair has grown in and no one would ever know that she had been hurt. I also tried it with success on a saddle mare. I do not know if this will work on spots of long standing, but if the spots are attended to when the white hair is first discovered it will be successful.—WM L. STILL, San Luis, Obispo Co., Cal., in *Breeders' Gazette.*

Major George Chrisman, of Harrisonburg, Va., has placed in the hands of James B. McComb & Brother, Somerset, Va., to be handled, the handsome young saddle stallion Montrose Squirrel, by Montrose, dam Romola, by Black Squirrel. Montrose Squirrel is a very promising candidate for high honors, both in the show ring and in the stud, and as a matter of course, is much thought of by his owner. Major Chrisman ranks high among breeders in the Valley of Virginia, and has purchased and brought some richly bred horses to that section.

Walker Morrill, the dead son of Winthrop Morrill, who stood for a number of seasons on the Eastern Shore, was represented by one of the best performers out this season in his daughter, the bay mare Lamp Girl, 2:09, whose dam was Bertie, by Signet, 2:27. Lamp Girl holds the record for Virginia bred trotters, having this season displaced the bay mare Miss Nelson, 2:11¼, by Norfolk, the dead son of Nutwood, that formerly stood at the head of Whitby Farm when that well known establishment was in its prime.

A horse alleged to be thirty nine years of age and a son of Ethan Allen 43, was recently exposed for sale by public auction in New England, and being said to be still vigorous in the stud, was purchased for $95.

A pair of Hackney bred carriage horses recently brought $5,000 at auction in England. A gentleman who disposed of six good harness performers in a country town obtained an average of $1,430 for the lot, London dealers taking the three best priced ones.

Miscellaneous.

SWEET POTATOES FOR THE ENGLISH MARKET.

We are glad to know that the Secretary of Agriculture is exerting himself to open out a market in Europe for the sweet potato. We grow thousands of barrels in the South for which we want a better market than the North affords us, and we can just as easily grow a crop twice or three times as large if only we knew where to sell them. This market can, we believe, be made in Europe if only time and effort be given to educating the people there. At first the outlook will not, we believe, be very encouraging. The eating of sweet potatoes is an acquired taste, and the people of Europe have not had the opportunity to acquire the taste. This should be given them by making numbers of shipments to different countries, and there putting them on the markets at low prices and thus tempt the buyers. The English market is open to receive these shipments at any time, but on the Continent of Europe a tariff bars the entry of the roots with most countries. Negotiations should be entered into with the view to getting this tariff either abolished or reduced. Mr. Wilson should receive the support of Southern farmers in the efforts he is making. It means money for them if only successful.

OLEOMARGARINE.

We would urge farmers in the South to call upon their representatives in Congress to use every effort in their power to secure the passage of the Grout bill, which will have the effect of preventing the sale of oleomargarine as butter, and thus permit dairymen to enjoy the fruits of their labor. With a united effort, there is no doubt the bill can be passed, and farmers will have only themselves to blame if the measure fails of passing.

DIVERSIFIED FARMING IN SOUTHSIDE VIRGINIA.

The following remarks are condensed from an address made by Mr. T. O. Sandy, of Burkeville, Va., at a recent Farmers' Institute at Farmville, Va. Mr. Sandy is a very successful farmer and live stock breeder in Southside Virginia, and speaks from practical knowledge obtained in the daily pursuit of his calling.

After pointing out the necessity for farmers meeting together and getting rid of the idea that each of them "knew it all," he went on to define what he called "general farming." It was not merely raising tobacco, or cotton, or vegetables, or horses, or cattle, or hogs, but it was the following of a number of these pursuits and the conducting of the whole to a successful issue. Southside Virginia was especially adapted for such a system, as both climate and soil favored it. The first aim of every farmer should be to improve his farm, and the only proper way to do this was to put onto it cattle, sheep and hogs of the best breeds adapted to the section, and then to see that these animals were well fed with proper rations to develop their capacity for making milk, butter, beef, mutton, lamb and pork. The keeping of live stock meant the making of a manure heap, and upon the manure heap depends the fertility of the farm. This, and not bought fertilizers, ought to be the principal reliance of every farmer.

Another important matter which ought to receive attention is the proper fencing and division of the farm into fields of a convenient size. Without this it is impossible to economically work the farm and utilize the different crops in the most judicious manner. The crops to be raised should be mainly cow-peas and sorghum cane mixed, for green and dry long feed and corn for ensilage. A silo is a necessity for the running of such a farm, but it need not in Southside Virginia be a costly one. He had built several round silos at very small cost. The walls were simply one plank in thickness, and these planks were held together by three or four iron bands. These silos kept the ensilage in the climate of Southside Virginia as well as the most costly building. Growing cow-peas and sorghum cane together he made from five to seven tons of feed to the acre, whilst from corn grown for ensilage he made from twelve to twenty tons to the acre. Growing as many acres of these crops as he could take care of every year, he was able to feed a large herd of live stock and thus make large manure heaps with which to carry on the improvement of his farm. Hogs he kept mainly on green crops, and found them very profitable. In the spring they ran on clover, or clover wheat and oats seeded together, say, from March to June. From June to August they were fed green corn; from August to November they lived on cow-peas, sorghum and corn. In December they were put into a field of artichokes and fed there until spring with just sufficient grain to keep them growing along. This system of feeding gave him strong, healthy pigs and cheaply made pork. Practically, the only cost was the labor of seeding the crops. The hogs did their own harvesting. He thought there was a good outlook for horses if the type called for by the market was bred; and holding this view, he was breeding

horses to a limited extent. He found that with his variety of feed crops and cutting machinery to reduce them to chaff, he could grow horses at a very small cost and largely add to his manure heap. He regarded the dairy cow, however, as the animal best fitted to meet the needs of the Southside farmer. For dairy products in the South there was an immense demand, but these products must be made and put up in the best shape possible in order to compete successfully with the Northern and Western products. The first thing to be done with a herd of cows intended for dairying, is to test their capacity with a Babcock tester and to weed out and sell every cow that does not pay for her board and leave a profit. A Southside farmer cannot afford to keep cows simply for fun; he must have cows that will keep him. A purebred bull is the next necessity, and he must be selected from dairy stock of known capacity to produce milk and butter and power to impress his quality on the cows. With such an animal and such cows, a herd can be built up which will be profitable if rightly fed. The farm growing the crops named can provide a ration which will be complete in all the requisites for production of milk and butter. A farm growing corn only cannot do this. To his dairy herd he fed corn ensilage, which cost him in the silo from 75 to 80 cents a ton, and cow pea and sorghum hay, of which he made from five to eight tons to the acre. From this feed he got excellent results, and found a ready market for his product, which he sold principally in the form of cream in the large cities. He guaranteed his cream to contain a certain percentage of butter fat, and with the separator was able to deliver always what he guaranteed. This enabled him to keep his customers.

In concluding his remarks, Mr. Sandy touched upon sheep and poultry as profitable adjuncts to the farm—advising that they should be kept in such numbers as could be carefully cared for. Nothing should be attempted which could not be given the proper attention to ensure success; and nothing should be neglected which would or could enhance the fertility of the farm. This was the root of all profit.

TIDEWATER (VA.,) NOTES.

Silos and Stock Feeding.

Editor Southern Planter:

Peas and beans (snaps) green from the field are being sent to Northern markets every day. Yesterday (the 5th Nov.), I saw several quite large shipments being made. These shipments will continue until we have a frost sufficiently heavy to kill the tender vines.

The only frost to date this fall was on the 18th day of October, at which date the temperature registered 48 degrees at the Government Signal Service Station in this city.

We are looking for a heavy frost to-night (Nov. 6th), but it will do no damage except to the young and tender candidates for divers offices. Some young and tender congressional sprouts; and some half dozen presidential aspirants, not quite so young and tender, will feel to-night as though the frost had bit them; but if Providence will kindly spare our peas and beans two weeks longer we shall be able to dispose of all *our* greens at a good price, and that is something we cannot do with *our* surplus crop of candidates—can't sell them not even for greens.

Speaking of frosts, I have been carefully consulting the records of the Weather Bureau, and I find that the past twelve months, or rather for the twelve months ending September 1st, 1900, we had a season of seven months and twenty days between light frosts, say at 35 degrees of temperature. And I note that the time between killing frosts, genuine "knock out" frosts, was nine months and nineteen days.

One can see by these figures that our growing season is quite long. October, just past, was mild, being 5 degrees per day warmer than the average October for thirty years. The rainfall was only 2.22 inches, a lack of about 1½ inches in rainfall. The soil is in good shape, however, and all fall work is well up, and the winter crops of kale and spinach look well, and the ground is being prepared for cabbage, to be set out in the open air in this month and the month of December.

Several of the people, mainly the dairymen, have silos. These are all filled with an unusually fine quality of silage for their stock this winter. At least two of our dairymen are using the round silo. One dairyman reports a silo holding 110 tons which cost him $110.00, which is $1.00 per ton as a cost to store ensilage, or, if the silo lasts ten years, which is not at all unreasonable to expect, it will cost ten cents per ton per year to house the silage.

I have gone over the figures carefully with one of our siloists, and I find that the maximum cost of silage in the silo is very close to the $1.00 mark. This includes the cost to grow, and the cost to put into the silo. We think that this price is very low, so much so that I doubt if it may be duplicated. And these figures are based upon a crop of only ten tons of green silage corn to the acre, when really he often grows as high as twenty tons to the acre.

If that be the case, and if a good class of silage can be put into silo at a cost of $1.10 per ton, why will it not pay to feed silage to stock, cattle and sheep. Why will it not pay for any of our farmers here, or elsewhere in the State, to put up silage freely, and buy

and feed a few head of stock each year. Stock is what is needed. Stock is what we want, and stock is what we must have to redeem the State of Virginia, agriculturally speaking. What is the use of having all out of doors fenced in extensively and expensively for stock to run over, and get a meagre living from, when twenty tons of silage can be raised to the acre, and stored in a silo at a cost, all told, of $1 10 per ton. What is the use, the sense, of buying Western hay at $12.00 to $18.00 per ton, when silage can be made at a cost, all told, of $1 10 per ton. It takes some "gumption" it is true to build and fill the silo and grow the silage; but it is going to require more "gumption" to get the $12.00 to $18.00 per ton together to pay for the hay.

One of our dairymen has discovered a "cute" trick. He plants two rows of corn, quite thickly in the row, with the rows the regular distance apart, and the third row he plants to cow peas. This lets in the sun and air to the corn, and then he cuts the corn and peas together and runs them into the silo. He estimates that for each acre of such silage he has at least three barrels of corn (fifteen bushels), and in his 110 ton silo just filled, he has at least 250 bushels of cow peas. This will make a good feed for his milk stock, all needed in addition is a little bran or ship stuff to even up the ration and make a better flow of milk, and the milk flow is essential, because that means eight cents per quart on this market.

One of our dairymen this last season (1900 has sold nearly $1,600 worth of roasting ears from his splendid field of "Blunt's Prolific" corn. The corn followed other crops taken from the same land the same season. Asked how many acres of land he had, he replied, "I pay taxes on only 100 acres; but I grow 230 acres of crops each year." Being curious to know how he succeeded in dodging the tax collector, he explained, "I grow two and sometimes three crops per annum from the same soil, and in figuring up carefully I find, as I have stated, that while I pay rent or taxes on 100 acres only, I harvest 230 acres of crops each year."

Such men; such management; and such farming will pay. Last year the same gentleman raised and sold 1,800 barrels of cabbage, at the rate of not less than $3.00 per barrel, and then raised between ten and twenty tons of silage corn for his silo, first selling off the roasting ears from the corn.

It will not do in these intensive times to do as our grandfathers did. We must break away from the methods and customs and habits of our grandfathers' days, and strike an entirely new gait.

There was never a field so promising as that of Eastern Virginia, for improved methods, implements, stock, brains, etc., etc. It is the best field for intensive farming that the sun shines upon. It has no equal, excepting a very small portion of France and England In many respects it resembles portions of England very much. In a few years we shall see all our soil cultivated and handled with English thoroughness. Intensive farming, the hurdle, root crops, the silo everywhere. Our plows will go deeper. The subsoil plow will go still deeper; and tile drainage deeper still.

There are at least two good farms under the one worn farm on top. The trouble with the agricultural South is this: It is still trying to cultivate that worn farm on top, that three or four inches of soil that has been robbed of its fertility long ago. The Southern farmer must get deeper into the soil, and climb to a higher shelf in his theory and practice.

But if silage, of first class quality and unlimited in quantity, can be grown, and snugly and safely stored up in silos at a cost of $1.00 to $1.10 per ton, why will it not pay to use it liberally, and feed it to milk and beef stock; to the calves; to the sheep, lambs and goats; to the mules; and, in a limited way, to the horses; and even to the chickens; for these all eat it readily, and most of them eat it greedily.

We plead earnestly for the milk cow; the ewe lamb; the spring pullet; the sow pig; the Nannie goat, with which our State may be agriculturally redeemed and reconstructed. We cannot make headway without stock on the farm. We must have more stock, and more stock crops, less fertilizer and less fertilizer crops.

Norfolk, Va. A. JEFFERS.

BELGIAN HARES.

The Danger in Introducing New Species of Animals.

Editor Southern Planter:

I notice in the *Planter* for November an article by Mr. T. L. Kabler, who seems much incensed because I advise the Virginia farmers to be conservative in their acceptation of the tales concerning the "mortgage lifting" power of Belgian hares. I presume from this that he wishes it understood that he endorses these statements. Be that as it may, I am delighted to hear of Mr. K.'s pecuniary success with these animals, but when he says he finds them more profitable than cattle, sheep, hogs, or poultry, I must say that I would like a little more detailed account of this financial superiority.

In order to speak so positively, I infer he must keep an accurate account of the expenses attached to feeding and caring for all his stock, and I think the readers of the *Planter* will join me in begging him to publish his yearly balance-sheets, so that we may know that he knows whereof he speaks, and follow in his

footsteps along the road to affluence by discarding all domestic animals except such as are necessary for the cultivation of the soil, the furnishing of wearing apparel, and the supplying of the table; supplying their places with these never to be too much-lauded Belgian hares.

Mr. Kabler makes a rather remarkable statement when he says, in speaking of the wild hare (*Lepus sylvaticus*), "We never hear of any injury they do to the crops," for it is a generally accepted fact that when they become plentiful, as they sometimes do in certain localities, they are destructive to both the garden and orchard when the latter is a young one, and nurserymen regard them as undesirable residents about their young plantations. I am also inclined to think he is mistaken when he says the conditions of the rabbit infested portions of Australia are so entirely dissimilar to our own, for I never heard that the rabbits were particularly injurious on the deserts of Australia, but that they were introduced into the settled sections for the purpose of sport, and that they did the damage there by consuming the pasturage intended for the sheep and preying upon the fruit trees and cultivated lands. They have not spread to all parts of the continent, and stringent laws are enforced to prevent their introduction into the uninfested portions.

There was one weak point in my comparison, and that Mr. Kabler ingeniously overlooked—namely, the absence of carnivorous animals.

The Australian Government at one time considered the advisability of introducing these, and some cats and other small carnivora were turned at large. These, in some parts, have become quite as much of a scourge as the rabbits they were intended to destroy. As I pointed out in my former article, it is impossible to foresee the ultimate result of the introduction of a new species, and I presume the Australians saw that the large carnivora would be a greater evil than the small, and concluded to let a bad thing be from fear of making it worse. I believe there is an offer of ten thousand dollars to any one who will suggest a means of exterminating the rabbits.

The fauna of the Palæarctic region seem to have reached the highest development in their means of offence. (I use the word "offence" here in its largest significance, including all means of attack, defence, speed, intelligence, prolificacy, invisability, climatic resistance, age of reproduction, etc.), and when introduced into other regions, quickly acclimatize themselves and gradually supplant the existing species; but in gauging their destructive capacity, care must be taken to consider the region from which they come and its relation to the region into which they go.

I have no data relative to their success in the Oriental and Ethiopian regions; and in both these cases the climate is a great help to the native species; but we know the effect of their introduction into the Australian, in the ravages of the rabbit (*Lepus cuniculus*), the stoat (*Putorius ermineus*), and the weasel (*P. nivalis*); and in the Nearctic, witness the English sparrow (*Passer domesticus*), the mongoose (*Herpestes mungo*), the brown rat (*Mus. deurmanus*, and the house mouse (*Mus. muscatus*), and as the affinity of the Neotropical is closest to the Australian or rather midway between the Australian and the Nearctic, we can readily imagine the effect of unwise importations upon that zone.

The existing fauna of these regions are the indications by which we estimate the relative time of their separation from the general land mass, and we may safely conclude that, taking the regions in the following order:

Palæarctic,
Nearctic,
Oriental,
Ethiopian,
Neotropical, and
Australian,

it will be unsafe, aside from extreme change of temperature, to introduce a wild species from above to below, but entirely harmless, so far as propagation of species is concerned, to make introductions from below to above, the conditions being modified or intensified as the regions approach to or recede from one another.

The law of the "survival of the fittest" will cause a species to increase and exterminate when introduced into a region where the existing fauna have "means of offence" inferior to the fauna of the region from whence it came, and will also cause the rapid destruction of the same species when introduced into a region where evolution has carried the fauna to a higher state of development. Herein lies the danger of carrying animals from Europe, the most highly developed portion of the Palæarctic zone, to any other part of our globe, for, like the genus "Homo," when transplanted they gradually supplant the native species, be the genus what it may.

Mathews Co., Va. PERCIVAL HICKS.

On the Arkansas Valley farmers have been experimenting with cantaloupes as food for cattle. Results are stated to have been more satisfactory. It appears that the farmers were unable to procure suitable help to put the cantaloupes in crates for market, so they tried feeding them to cattle, and amazing results in flesh and fat formed came about. The matter was laid before Colorado State Veterinarian Bock, who has taken the matter up. Perhaps Colorado cantaloupe-fed beef may yet become as famous as the Colorado lambs.

THE MUTUAL FARMERS' CLUB, FREDERICK COUNTY, VA.

This Club met at Sunnyside, the residence of Chas. E. Clevenger and son, November 10, 1900.

The President called the meeting to order at 10:45.

Roll call showed the following members absent: John L. Bond, Dr. T. Y. Brown, Edward W. Lupton, and Howell M. Bond. Excuses were made for the absence of John L. Bond and E. W. Lupton.

Minutes of last meeting were read and approved.

Criticism on the farm of Lewis Pidgeon not handed in.

The following members were then appointed to consider and report questions for the next meeting: Wm. O. Branson, N. W. Solenberger, and Jonah L. Reese.

L. M. Boyer read the *Club Advertiser*, a very interesting paper, which brought out some discussion on fall and winter plowing, several being of the opinion that it would destroy cut worms and wire worms.

Under the head of unfinished business the questions referred to E. W. Lupton and Dr. Brown were continued.

The business for the day was then taken up. The first question, "Give your experience in feeding cattle; when is the proper time to commence the feeding? how often to feed each day, and also all other particulars necessary to success?" was answered by I. T. Wood. Mr. Wood considered well bred cattle with good bone and broad across the hips to be one of the most essential points to success; would want cattle in good condition, and commence feeding about the middle of October. While there is still some grass, would feed twice daily.

The subject brought out a good deal of discussion as to the kind of stock to feed, and the feed that should be used. The general opinion seemed to be that corn was all that was necessary when running on grass; but when feeding without grass, mill feed should be used to regulate the bowels of the animal.

Dinner being announced, the Club adjourned to the dining room, where the hosts had prepared an excellent dinner.

After inspecting the farm and the premises, the meeting was again called to order, and the question, "Give the Club your idea of so diversifying farming as to make it more profitable," which was referred to D. W. Branson, was continued on account of Mr. Branson not being able to prepare an answer for this meeting.

Lewis Pidgeon answered the question, "Would not farmers keeping a half dozen or more milch cows profit by using a centrifugal separator?" Mr. Pidgeon showed in his essay that a larger per cent. of cream would be obtained, and also have the milk in better condition for feeding young stock, by using a centrifugal separator than by any method of setting. He, however, considered the separator a finely constructed machine, requiring more care and skill than was usually found in the general farmer.

A lively discussion followed.

Under the head of new business those who had not handed in criticisms at the last two meetings were requested to hand them in to be read at the next meeting.

The committee on questions to be discussed reported as follows:

(1.) Is it profitable as well as advisable for a farmer to keep his horse till he is old and worn out?

Referred to D. P. Lupton.

(2.) Is free rural mail delivery advisable; and if so, how are we to get it?

Referred to H. S. Lupton.

(3.) Give the best method of building an ice house above ground for this latitude.

Referred to Wm. E. Branson.

Miscellaneous business was then taken up. Under this head the question was asked, What caused dead spots in the wheat this fall? Some thought a root weavel, whilst others disagreed with this view.

Mr. J. W. Branson then read an article from *The Friend's Intelligencer*, entitled "Rosy Views of Country Life," comparing the farmer with the man who lives in town, showing the many advantages of the farmer.

The Club then adjourned to meet at Fairfield, the residence of Hugh S. Lupton, December 8th, 1900.

EDW. L. IRISH, *Secretary.*

The cow which twice was declared champion at the London Dairy Show recently died of milk fever in England. This cow, whose name was Nancy, was a cross-breed, her sire being an Island-bred Guernsey bull and her dam a deep-milking pure-bred Shorthorn. She was calved November 6, 1891, and won her championship at the London Dairy Show in 1898 and 1899. Had she lived to be shown again it is probable that she would have won out for the third time, as the day before she took sick she gave 66 pounds of milk, and in three successive periods of lactation, extending to ten and one-half months, each gave 1,500 gallons.

Here is a hint from the Kansas City *Journal* that may be valuable to farmers who own goats: "The man who goes in for Angoras will find that it is true they will jump anything under 100 feet high and climb a sapling. They will get at the neighbor's wash as sure as it goes on the line, and there will be lingerie to pay for. But if you would be on the safe side and keep the billy there, turn him up and cut away the little creeper that you will find at the bottom of the hoof. It will not hurt him to loose it, but it ruins his ambition as a mountebank. It will save lots of trouble to have a chiropodist get at the Angora with a nail trimmer."

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PUBLISHERS' NOTES.

Our Special Twentieth Century Edition.

We intend to mark the commencement of the twentieth century and the sixty-second year of the issue of this journal by a special twentieth century edition of *The Southern Planter*. This issue will appear in a specially designed colored cover, and will be largely devoted to a history of the progress of agriculture in the Southern States during the nineteenth century. The article dealing with this subject is being written by a gentleman of high competence to write upon the question, and will doubtless become a standard work of reference on the subject. The issue will also be largely illustrated and in every respect be a most attractive number. To advertisers it will afford an opportunity for reaching Southern farmers and planters which they cannot afford to overlook, as in addition to the copies sent to our large list of readers, now over 10,000 in number, we shall send the same to more than double that number of the best farmers in Virginia, North and South Carolina, Maryland, West Virginia, Tennessee, Kentucky and Georgia. We would ask that our readers send us the names and subscriptions of as many of their friends as possible on the special terms we are offering, and as early as possible this month, so that we may be able to make full provision for the copies required. The special issue will of itself be well worth twice the yearly subscription to the *Planter*, and will in future years come to be regarded as a record of Southern progress to be treasured and valued. We trust that our readers will feel that after sixty-one years of life *The Planter* is still as well worthy of support as ever before in its history, and that they will exert themselves to give us such an addition to our subscription list that we

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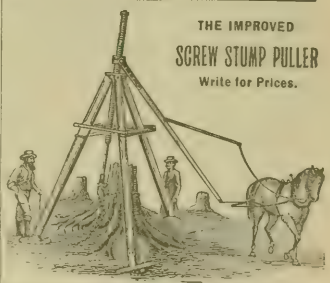
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MAGAZINES.

From the thirteen articles that make up the December issue of *The Forum*, one may, without invidiousness, choose that by Mr. Henry L. West as likely to attract most attention. Mr. West reviews "The Programme for Congress," and his forecast is luminous and convincing. The Secretary of the Republican National Committee, Hon. Perry S. Heath, enumerates the "Lessons of the Campaign" in a pardonably exultant tone, and Mr. John Ball Osborne recounts "The Work of the Reciprocity Commission," which should prove interesting reading for the tariff-tinkers. In distant relation to the latter stands an article by Mr. John P. Young, the managing editor of the San Francisco *Chronicle*, entitled "The Economic Basis of Protection." In answer to Mr. Eugene T. Chamberlain, the United States Commissioner of Navigation, is an article entitled "The Development of British Shipping," by Mr. Benjamin Taylor, an acknowledged authority on British navigation figures. Mr. J. I. Rodriguez, who was the unofficial adviser in Spanish law to the American Peace Commissioners at Paris, asks: "Can there ever be a Cuban Republic?" in an essay which may possibly foreshadow the course of the Administration in regard to Cuba. "The Progress in Penology" is reviewed at length by ex Congressman S. J. Barrows, who is now the Corresponding Secretary of the New York Prison Association, and the "burning" question of "American Coal for England" is considered by Mr. George C. Locket, who is heavily engaged in England in that important branch of industry. Some of the remaining titles are "America in the Pacific," by Hon. John Barrett, late U. S. Minister to Siam; "The Chinese System of Banking," by Hon. Charles Denby; "Vacation Schools," by Dr. Helen C. Putnam; "The Education of a Millionaire," by Hon. Truxtun Beale; and "The Higher Education of Women in France," by Anna Talman Smith.

The Christmas number of the *New Lippincott* Magazine publishes complete Amelia E. Barr's latest and best novel, entitled "Souls of Passage." The author says this story is the fulfilment of twenty years' intention, though only within the last twelve months has she felt that the time was ripe for launching her darling plot. It is certainly the best thing Mrs. Barr has done, not even excepting "The Bow of Orange Ribbon." The title, "Souls of Passage," element shows strongly on one side of the story which deals with picturesque reincarnation. There is a striking psychological incident that one cannot forget, but, above and beyond all, the novel is an intensely human story of Scotland, in which people love or hate, succeed or fail, live or die, in the most genuine sort of manner. The reader will feel a glow of gratitude to the author for writing about educated Glasgow people whose speech is understandable without foot-notes.

Miss Agnes Repplier contributes one of her charming essays, calling it "As Advertised." It hits at the oddnesses of advertisers, past and present, and is witty and satirical in Miss Repplier's own inimitable way.

Readers of "A Monk from the Ghetto," which appeared in the July number of the *New Lippincott*, are eager to see another story by Martha Wolfenstein, and they may now have the opportunity. "An Idyl of the 'Gass'" (Jews' Street) is in two chapters, and is an amusing story of a Jewish honeymoon.

Two particularly important papers in the Christmas *New Lippincott* are by Lieutenant John Morris Ellicott, U. S. N., and by Henry Charles Lea, LL. D. Lieutenant Ellicott's article is descriptive of the United States Naval War College at Newport, Rhode Island, where, as perhaps few persons realize, imaginary pa-



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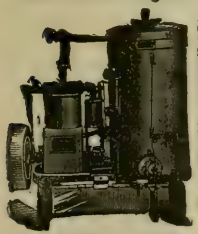
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per battles are fought each summer between the United States and foreign countries by pupils of the school, composed mainly of officers of executive and command rank. Cuts of the battles thus fought, with explanations, add vastly to the paper's interest. Mr. Lea investigates a subject vital to all Freemasons under the title "An Anti-Masonic Mystification." This must command wide attention, coming from so noted a source.

The Christmas *Ladies' Home Journal* offers a superabundance of literary and artistic features in most attractive form. Among its nearly twoscore contributors are Mrs. Lew Wallace, Elizabeth Stuart Phelps, Charles Major, William Perrine, Clifford Howard and Elizabeth Lincoln Gould, while A. B. Frost, W. L. Taylor, Reginald B. Birch, Henry Hutt, George Gibbs, and as many other illustrators supply its pictorial features. Apart from the articles having special holiday timeliness of interest, the notable features of the Christmas *Journal* include "The Innkeeper's Daughter Who Dissolved a President's Cabinet," "What May Happen in the Next Hundred Years," "Jerusalem as We See it To-Day," "Two Women's Gifts of Twenty-Five Millions," "The 'Little Men' Play," a dramatization of Louisa M. Alcott's delightful story; "Where Children See Saint Nick." "The Fourteenth Man," "Two Christmas Days at Rock Farm," and "The Successors of Mary the First," "The Story of a Young Man," and "The Blue River Bear Stories," which are continued. Edward Bok has a thoughtful article on Christmas celebration, and there are various articles on women's wear, Christmas presents and edibles, while various other practical, helpful themes are ably presented. By The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

REPORTS.

U. S. Department of Agriculture, Washington, D. C. Bureau of Animal Industry. Report upon Experimental Exports of Butter, 1898–99.

Bureau of Animal Industry. Statistics of Oleomargarine, Oleo Oil and Filled Cheese.

Division of Chemistry. Bulletin 58. The Manufacture of Starch from Potatoes and Cassava.

Division of Entomology. Bulletin 26. Proceedings of the Twelfth Annual Meeting of the Association of Economic Entomologists.

Office of Experiment Stations. Bulletin 87. Irrigation in New Jersey.

Report of the Division of Soils for 1900.

Farmers' Bulletin 121. Beans, Peas, and other Legumes as Food.

Farmers Bulletin 122. Experiment Station Work.

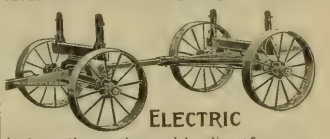
Division of Entomology. Circular 42. How to Control the San Jose Scale.

Publications of the Department of Agriculture for sale by Superintendent of Documents.

Crop Reporter. November, 1900.

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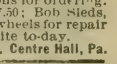
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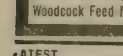
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Kansas Experiment Station, Manhattan, Kas. Bulletin 99. Press Bulletins 35 to 70.

New York Experiment Sation, Geneva, N. Y. Bulletin 176. Inspection of Commercial Feeding Stuffs, 1900.

North Carolina Experiment Station, Raleigh, N. C. Bulletin 173. Another Warning in regard to Compost Peddlers.

Bulletin 174. Methods of Determining Proteid Nitrogen in Vegetable Materials.

Bulletin 175. Some New Species of the Genus Cratægus, etc.

Louisiana (North) Experiment Station, Baton Rouge, La. Bulletin 62. Report of Results for 1899 at Calhoun, La.

Pennsylvania Experiment Station, State College, Pa. Bulletin 52. Rye, Wheat and Quaker Oats Feed for Milk Production.

Bulletin 53. Methods of Steer Feeding.

Rhode Island Experiment Station, Kingston, R. I. Thirteenth Annual Report, 1900.

Bulletin 71. Experiment on Top Dressing Grass Land.

Bulletin 73. Commercial Fertilizers.

Wyoming Experiment Station, Laramie, Wyo. Bulletin 45. A Preliminary Report on the Artesian Basins of Wyoming.

Virginia Weather Bureau, Richmond, Va. Report for October, 1900.

West Indian Agricultural Department, Barbadoes, W. I. The West Indian Bulletin, Vol. I, No. 4.

CENSUS BULLETINS.

CENSUS OFFICE, WASHINGTON, D. C.

Bulletin No. 11.—Population of cities having 25,000 inhabitants or more, 1900.

Bulletin No. 12—Population of Vermont.

Bulletin No. 13—Population of Massachusetts.

Bulletin No. 14—Population of Colorado.

Bulletin No. 15—Population of Hawaii.

Bulletin No. 16—Population of Florida.

BOOKS.

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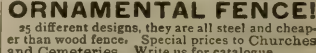
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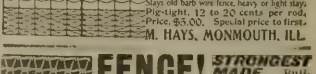
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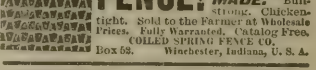
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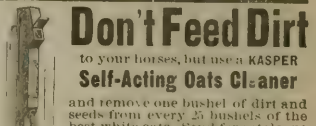


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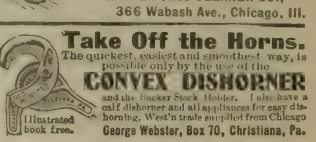


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Made in all the standard calibers both Rim and Center Fire. Weight about 7 pounds. Standard barrel for rim fire cartridges, 24 inches. For center-fire cartridges, 26 inches.

If these rifles are not carried in stock by your dealer, send price and we will send it to you express prepaid.

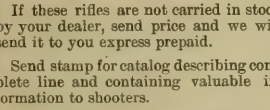
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is often enough to do some things. It is often enough to buy a wagon if you buy the right kind. The



ELECTRIC HANDY WAGON

lasts that long under ordinary conditions. First the life of a wagon depends upon the wheels. These are equipped with our **Electric Steel Wheels**, with straight or stagger spokes and wide tires. Wheels any height from 24 to 40 inches. It lasts because tires can't get loose to rattle, hubs can't crack or spokes become loose, fellows don't rot, wood never dry rots. Anglo steel bounds.

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There are cheap and beautiful homes in the "Sunny South," near the sea, and near that thriving seaport city, **Norfolk, Va.**, for thousands of people who want happy homes in a mild, healthful, and delightful climate, a kind and productive soil, the very best markets in the world, the very lowest freight rates, good social, educational, and religious privileges, and the greatest number of other both natural and acquired advantages, to be found in any other one section of the Union.

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scribing with graphic force the scenes of reconstruction times in Virginia. Capt. Patteson has added to the novel an essay upon the destiny of the Negro in America which abounds with practical suggestions as to the method of dealing with this problem of Southern civilization. Whilst we are unable to endorse all the views of Capt. Patteson on this subject, we commend what he has to say to the thoughtful consideration of Southern people. He writes from a close acquaintance with the difficulties of the problem, and therefore with the weight of knowledge. We hope to see the book have a large circulation. It certainly ought to have in Virginia, where Capt. Patteson is so well known.

Willis, or the Model Farmer. How to Have a Happy Life. By G. H. Alford, of Mississippi. Published by the Sunfield Publishing Company, Akron, O. Price, 35 cents. This book gives a history of the life of a model farmer, and affords a good example for young men to follow. It is well worthy of study, and contains much information of value to every farmer.

PAINT TALKS—XXXIV.

CONCERNING LINSEED OIL.

It may be possible that in time something superior to linseed oil for painting purposes may be discovered; it may be that even now something better is known—but for practical, every-day needs, strictly pure linseed oil is the most important item that goes to the making of good paint. Probably half the defects of modern paints of the better grades is traceable to impure linseed oil.

Linseed oil dries by oxidation, while of the common adulterants, the vegetable oils do not dry at all, while the mineral oils and rosin oils dry very slowly, by evaporation. With adulterants of the first class the paint remains soft and with the decay of the oil, crumbles away; while the evaporation of the second class of adulterants leaves the paint spongy and absorbent.

No matter how good the pigment, adulterated oil will convert it into poor paint. Therefore, it behooves the consumer to see, first, that he buys his oil of a dealer whom he can trust, and secondly, that the oil supplied comes from a legitimate crusher of flaxseed.

Linseed oil being so important as a factor in making good paint, it follows that the pigments, generally speaking, that absorb the most of it make the most durable paint. Lamp black, which requires many times its own weight of oil to fit it for application with a brush, is known to be unsurpassed in this respect, and zinc white, which takes seventy-five per cent. of its weight of linseed oil to fit it for use, owes its great durability largely to this fact.

Where linseed oil can be obtained without risk of adulteration, probably the most satisfactory results are obtained by buying combination paste paints based on zinc white, and thinning for use with raw oil; but where this assurance cannot be had, it is perhaps generally safer to buy one of the pure oil ready mixed brands of known quality.

STANTON DUDLEY.

Choice Vegetables always bring high prices. To raise them successfully, a fertilizer containing at least 8% Potash should be used.

Our books furnish useful information on all subjects relating to crop raising. They are sent free.



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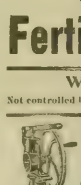
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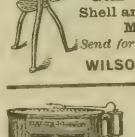
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Must imitate Nature

The Iowa Hot Air Machines

are the ONLY ones to do this. Send for free catalogue.

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are made in many sizes to meet every want. Reliable, simple, self-regulating. Circular free; catalog [illegible]

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Good's Caustic Potash Whale Oil Soap, No. 3.
It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, $2.50; 100 lb. kegs, $4.50. Half barrels, 270 lbs., at 3½c. per lb.; barrels, 425 lbs., at 3½c. Large quantities, special rates. Send for circular.
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Send for Circulars and Price-List.
FELLSWORTH LIME WORKS
REEVES CATT, Agent,
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In sight of Richmond, Va. Improvements first-class. Society, the best. Healthy. Big future. Address
OAK SHADE,
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VIRGINIA FARMS
$3 PER ACRE AND UPWARDS.
EASY PAYMENTS. CATALOGUE FREE.
GEO. E. CRAWFORD & CO., Richmond, Va.
Established 1875.

THE CENTURY MAGAZINE,
The leading periodical of the world, will make 1901 "a year of romance." Besides a great program of illustrated articles—a superb panorama of the Rhine—John Bach McMaster's group of articles on Daniel Webster—color pictures, etc., *The Century* will present, beginning with November, 1900, the first issue of the new volume.
Short novels and complete stories by F. Anstey, Mrs. Burnett, George W. Cable, Winston Churchill, Edwin Asa Dix, Hamlin Garland, David Gray, Joel Chandler Harris, Bret Harte, W. D. Howells, Henry James, Sarah Orne Jewett, Rudyard Kipling, Ian Maclaren, S. Weir Mitchell, Thomas Nelson Page, Bertha Runkle, Flora Annie Steel, Frank R. Stockton, Ruth McEnery Stuart, Gen. Lew Wallace, Charles Dudley Warner, E. Stuart Phelps Ward, and Mary E. Wilkins.
"The Helmet of Navarre," a great novel, full of life adventure and action, the scene laid in France three hundred years ago, began in the August (1900) *Century* and will continue for several months in 1901. Critics everywhere are enthusiastic over the opening chapters of this remarkable story. "The author's fame is apparently established with this, her maiden effort," says the *Boston Transcript*. *The Critic* calls it "A remarkable performance."
Free.—New subscribers to *The Century Magazine* who begin with the number for November, 1900, will receive free of charge the three previous numbers—August, September and October—containing the first chapters of "The Helmet of Navarre," or, if these numbers are entirely exhausted at the time of subscription, they will receive a pamphlet containing all of the chapters of "The Helmet of Navarre," contained in the three numbers. Ask for the free numbers when subscribing. $4.00 a year. The Century Co., Union Square, N. Y.

KANSAS CITY SHOW.
The special prizes of $50 (each offered by the Pasteur Vaccine Company for the best Hereford calf and for the best Shorthorn calf in the show) were won by Mr. T. F. B. Sotham, of Chillicothe, Mo., with his Hereford calf "Thickflesh," and by Mr. George Bothwell, of Nettleton, Mo., with his Shorthorn calf "Nonpareil, of Clover Blossom." The Pasteur Vaccine Company is very well known among cattle raisers throughout the country on account of its celebrated Blackleg Vaccines. The Pasteur Company introduced blackleg vaccination in 1895, and since that time over 2,000,000 calves have been successfully treated in the United States and Canada with "Pasteur Vaccine," which is the original and genuine article. The Company is just issuing some fresh literature, which will be mailed upon application to its head office in Chicago, or to any of its branch offices or general agencies.

FINE FARMS in the great fruit, grain and stock section of VIRGINIA. Best climate and water in the U. S. Near great markets, with best educational advantages. For further information, address
SAM'L B. WOODS, Charlottesville, Va.

YOUR CHANCE
If you will send us your name and address this month, we will send you our catalogue when out; and if you will buy twenty-five cents worth of package seeds, selected from our catalogue, we will send you FREE POSTPAID, A SOLID STEEL WAVE EDGE, TWELVE INCH BREAD KNIFE. We warrant our seeds. YOUR MONEY BACK IF YOU WANT IT. FOREST SEED CO.,
Cortland, N. Y.

EARLY JERSEY WAKEFIELD
Cabbage and Lettuce Plants
We have a few thousand to spare at present.
THOMPSON'S SONS, Rio Vista, Va.

FARM MANAGER.
A trustworthy, unencumbered man of long and successful experience; full knowledge of sheep and cattle; has raised 100 acres each of corn, oats and wheat, and 300 tons of hay in a single year in Southern Virginia. would take full charge of well equipped plantation in Virginia or North Carolina on salary or percentage of production Highest references and full particulars given and required. Address
O. HAND, BRIDGE HAMPTON, N. Y.

PLYMOUTH ROCKS Nice ones at prices to suit.
We need room; bargains if ordered soon.
COLLIE PUPS bred in the purple; eligible to registry.
JOHNSON & GOODE,
BOYDTON, VA.

GARNETT'S
Barred Plymouth Rocks
We have a few choice cockerels of the best strains, viz.: Thompson, Bradley Bros., and Miles for sale at $1.00 each. We guarantee them to please you.
GARNETT BROS., MITCHELL'S, VA.

..Wanted to Purchase..
SILVER-LACED WYANDOTTE and BLACK MINORCA
PULLETS and ROOSTERS. State price and number can offer.
P. O. Box 330, - Richmond, Va.

Green Valley Poultry Yards.
M. B. TURKEYS, bred from a 45-lb. tom, beautiful plumage, $5.00 pr. March hatched LT. BRAMAH cockerels, $1.00 each. TOULOUSE GEESE, $3.00 pair. Pen of 10 fine S. C. B. LEGHORN, 1 yr. old hens and cocks for $10.00. INCUBATOR EGGS. P. R.-Bramah cross, $3.00 per hundred.
C. H. BENNETT, - McDonald's Mills, Virginia.

BIRDVILLE POULTRY YARDS,
PETERSBURG, VA.

We desire to sell our whole stock in order to make a change in our business.

Buff Leghorns..

Pullets, hens, cockerels and cocks one to three dollars.

Mammoth White Pekin Ducks..

(Rankin strain) two to three dollars. White Holland Turkeys, two to three dollars.

White Guineas..

One dollar each.

100-egg Buckeye Incubator, 200-egg Prairie State Incubator, 288 Duck egg Prairie State Incubator, Brooders, Cutting Machines, Bone Mill, etc. **For sale very low, at once. Correspondence solicited.**

OLD DOMINION PROLIFIC LAYING STRAIN of

B. P. ROCKS and WHITE WYANDOTTES

Young stock ready for shipment September 1st. **All stock gauranteed pure and bred for utility.** Correspondence cheerfully answered.

Old Dominion Poultry Yards. J. H. SLEDD. Negro Arm, Va.

Cottage Poultry Yards.

Black Langshans

..EXCLUSIVELY..

Young stock now ready. Cockerels from $1.00. Trios not akin Price according to points. Eggs $1.00 per setting.

M. A. OLNEY, Coleman's Falls, Va



SILVER LACED WYANDOTTES

Breeding Cockerels. 75c. ea. Trio (1 male, 2 females), $2.00. Reduction made for larger orders. Eggs in season, at 75c. per sitting.

Dr. H. H. LEE, Marmion, Va. Rockbridge Co.

FOR SALE—PURE-BRED

B. P. Rock and S. C. Brown Leghorn

Pullets and Cockerels, 60 cts. each Year-old Brown Leghorn hens, 60 cts. This price will not continue after Christmas.

Miss S. M. HITER, Ellisville, Louisa Co., Va.

WANTED AT ONCE

Old Live Pigeons..

IN ANY QUANTITY.

W. C. LYNHAM, 412 W. Marshall, Richmond, Va.

A BARGAIN IN

ABERDEEN-ANGUS HEIFERS

Must sell to make room. Also PLYMOUTH ROCK CHICKENS and INDIAN RUNNER DUCKS. HUMBERT BROS., CHARLOTTESVILLE, VA.

MISSOURI STATE HORTICULTURAL SOCIETY.

The forty-third annual meeting will be held at Farmington, Mo, on December 4th, 5th and 6th, 1900. L. A. Goodman, Secretary, Westport, Mo.

THE INTERNATIONAL LIVE STOCK EXPOSITION,

To be held at Union Stock Yards, Chicago, Ill., December 1–8, promises to be one of the largest exhibitions ever held. There are over 1,200 entries of breeding animals, and 200 car loads of fat stock are expected. Railroads will issue tickets at one fare plus $2 from all points. We acknowledge the courtesy of tickets of admission.

CATALOGUES.

Iowa Incubator Co., Des Moines, Iowa.

HOW ARE YOUR NERVES?

If they are weak and you feel nervous and easily "flustrated," can't sleep, and rise in the morning unrefreshed, your blood is poor. Strong nerves depend upon rich, nourishing blood. Hood's Sarsaparilla makes the nerves strong by enriching and vitalizing the blood. It gives sweet, refreshing sleep and completely cures nervous troubles. Begin taking it to-day.

Nausea, indigestion are cured by Hood's Pills.

CASTALIA HEREFORDS.

We are in receipt of a very prettily got up pamphlet of press comments on the notable herd of Herefords, owned by Mr. Murray Boocock, of Castalia, Keswick, Virginia, and also of a beautiful photograph of five of his Hereford calves. The comments of the press are all most complimentary of the public spirit and enthusiasm of Mr. Boocock in behalf of his favorite breed. The calves are evidently fine specimens of the breed, as they should be when account is taken of the great bull Salisbury at the head of the herd, and of the fine cows the matrons of the calves. Mr. Boocock tells us that he is selling stock all through the South, and that wherever they go they give satisfaction. The recent sales of Herefords in the West show that the popularity of the breed amongst the beef makers is still on the increase.

VIOLET GROWING.

THE SPOT DISEASE.

We invite the attention of violet growers, of whom we have many in this State and other parts of the South, to a bulletin which has been prepared by Mr. P. H. Dorsett, of the Division of Vegetable Physiology of the United States Department of Agriculture, on the "Spot Disease of the Violet." This bulletin gives rules for the successful growing of violets, and deals with the means of preventing the disease referred to. There does not appear to be any known remedy for the disease when once established. The bulletin is for sale by the Superintendent of Documents, Union Building, Washington, D. C. Price, 10 cents.

Elk Garden SHORTHORNS

Herd headed by the famous Scotch bull KNIGHT OF THE THISTLE, 108656, and the champion bull SYMMETRY, 126509, by Barrister.

The Scotch tribes represented are: Duchess of Gloster, Lavender, Rose of Strathallan, Mina, Rose of Autumn, Miss Ramsden and other highly-prized families.

In popular blood and character of cattle Elk Garden challenges comparison.

Breeding stock of the highest merit can be supplied at conservative prices.

H. C. STUART,
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EAST RIVERSIDE SHORTHORNS

PROPERTY OF
JAS. F. CLEMMER, Summerdean, Va.

3 CHOICE YOUNG BULLS for sale. Write or come and see them.

THOMPSON & TRIMBLE,
SWOOPE, AUGUSTA CO., VA.

Breeders of **Shorthorn Cattle and Shropshire Sheep.**

...CORRESPONDENCE SOLICITED.

ELLERSLIE FARM
Thoroughbred Horses
AND SHORTHORN CATTLE,
Pure Southdown Sheep and Berkshire Pigs.
FOR SALE. R. J. HANCOCK & SON, CHARLOTTESVILLE, VA.

Berkshire Pigs

FOR SALE.

Entitled to registry. Both sexes. $3.50 per head.

W. ELLIOT HAMMOND, Mansfield Farm, Goochland C. H., Va.

BERKSHIRES

All ages—most of them young. From registered stock and are choice animals.

D. O. NOURSE, Agriculturist, ... Blacksburg, Va.

Dorset Sheep

Have a few choice rams and ram lambs left. Only good stock sold.

Poultry Plant for sale at about one half cost. 60 acres good land; new and convenient buildings; capacity, 1000 hens and 5000 chicks.

Wishing to devote entire time to other departments and matters, I offer a great bargain to insure a quick sale.

GREEN RIDGE FARM, Salem, Va
WALTER WATSON.

Choice POLAND-CHINAS

I offer some Extra choice pigs, 3 mos. old, at $5.00 each. Gilts ready for breeding $9.00 each. 1 trio Bronze Turkeys, $6.00. Will exchange for St. Bernard or Mastiff Pup. E. T. ROBINSON,
LEXINGTON, VA

ESSEX PIGS

From best registered stock $10 per pair; 6 to 10 weeks old. Also a few choice ram Lambs, pure Southdown, $8 to $10 each; $9 for choicest lambs. Your orders solicited.
L. G. JONES, Bethania N. C.

PIGS LARGE ENGLISH ... BERKSHIRE

Sired by Grand son of Longfellow 2d, the $400 Biltmore boar, out of 400 lb. sows. No finer stock in State.
NORMAND SMITH, RICHMOND, VA.



FOR SALE
A few highly bred, beautifully marked, one-year old registered
Jersey Bulls and Heifers $30. Each.
T. P. BRASWELL, Battleboro, N. C.

Pedro's Orange King
FOR SALE.
Registered number, 5020. Bred from the best strains of Jerseys ever imported to this country. Pedigree traced back six generations. Price, $150. f. o. b.
W. H. CHAPMAN, Gordonsville, Orange Co., Va.

For Sale--PEKIN DUCKS.
Imported stock. Present price, $1.00 per pair; later higher. M. B. Turkeys, $5.00 a trio.
Miss CLARA L. SMITH,
Croxton, Caroline Co., Va.

DISHORNING CATTLE.

Dairymen and breeders who are competent to speak on the subject are unanimous in their approval of the practice of dishorning, both from the humane and the practical money-making point of view. A great deal depends, however, upon the manner in which the operation is performed. The accompanying illustration shows the Webster Convex Dis-



horner used in conjunction with the Bucker Stock Holder. The convex is one of the simplest, and at the same time, most powerful, dishorners made, having a double action, and making a smooth, quick, clean cut, with the least possible pain to the animal. One special advantage is the fact that it is open at one side so that it hooks onto the horn, being easily put in place and easily removed, if the animal for any reason becomes unmanageable before the cut is made. Mr. Webster, the inventor of this and other instruments used in dishorning, has had unusual success in placing it in the hands of farmers and breeders. The large sale it has had is ample testimony to its value. All Western orders are filled from the Chicago store, thus effecting a saving of time and freight, but all correspondence should go to the home office Send for the illustrated pamphlet on Dishorning. Address, George Webster, Manufacturer, Christiana, Pa.

WHEN CHRISTMAS COMES

ENTER HEARTILY INTO THE SPIRIT OF THE SEASON AND MAKE EVERYBODY AS HAPPY AS YOU CAN.

When Christmas comes by all means have the house dressed with holly and pine and fir, and don't forget the mistletoe. Go out and mingle with the Christmas throngs. There is an exhilaration in forming a part, if only a unit, in the crowd that is so gay and so merry, in hearing bits of bright talk, in greeting friends and acquaintances, and seeing the overflowing joy of the children. Never let a single Christmas pass without reading a Christmas story and singing a Christmas song, and do not overlook the sweet significance of the day itself. Remember that it is for all the world the anniversary of Christ's birth. Be as happy as you can and make others as happy as you can.—Margaret E. Sangster in December *Ladies' Home Journal.*

You have read of the cures by Hood's Sarsaparilla, and you should have perfect confidence in its merit. It will do you good.

The Filston Farm Jerseys

Have been bred for milk for many years.

If you are desirous of improving the yield of your herd by the addition of a thrifty bull calf, handsome and fashionably bred, write to
ASA B. GARDINER, Jr., Manager,
GLENCOE, MD

The bulls from this farm have been sold to the very best herds in the South.

Also some very fine **Berkshires** now ready for delivery, sired by our imported Berkshire Storm King; from sows by Lord Windsor, imported; by Collegian, imported; and by King Longfellow.

We mail a little "Book of the Herd" on request.

FALL CREEK STOCK FARM
20 HEAD OF FINE
Spanish Jacks and Jennets

FOR SALE. 2 to 6 years old; 14½ to 16 hands high. Terms right. Prices to suit the times. Also Reg. JERSEY CATTLE.
J. BAKER, MGR., LAWRENCE, IND.
(8 miles N. E. Indianapolis)



..FOR SALE..
Jacks, Jennets and Durham Calves.
FINE JACKS a Specialty. Inclose 2c. stamp for Jack catalogue.
W. E. KNIGHT & CO.
Nashville, Tenn.
In writing mention Southern Planter.

FARMERS' LIBRARY!

SOUTHERN PLANTER, -	50
VEGETABLE GROWING IN THE SOUTH,	$1.25
FERTILITY OF THE LAND,	$1.25
FEEDS AND FEEDING, -	$2.00
TOBACCO: How to Raise it, etc.,	25
FOOD FOR PLANTS, - -	10
	$5.35

All for $4.50.

THE SOUTHERN PLANTER,
RICHMOND VA.

CASTALIA HEREFORDS

IMP. SALISBURY AT HEAD OF HERD.

"THE BLOOD THAT BREEDS ON."

MARCH 3rd, 1898, SALISBURY "topped" all prices then recorded in the annals of Herefords at auction in America at the famous Sunny Slope sale at Emporia, Kansas.

FEBRUARY 27th, 1900, 2 SONS of SALISBURY "topped" the bull offering on the first day of the great Four-Days-Hereford-Sale at Kansas City.

Stock for sale.

MURRAY BOOCOCK,
"CASTALIA," KESWICK, VA.

THE PRESIDENTIAL ELECTION.

The result of the Presidential election last month was overwhelmingly in favor of the Republicans, who carried 28 states, while the Democrats carried 17. Both parties claim Kentucky, but the chances at this writing are strongly in favor of the Democrats, and is classed accordingly. Six states which went for Bryan in 1896, Kansas, Nebraska, South Dakota, Utah, Washington and Wyoming, veered around to the Republicans this year. According to the table below the Republican candidate has 292 electoral votes and the Democratic 155, but a complete count may change these figures slightly. In Congress the republicans will have a majority in both branches, probably 20 in Senate and 55 in the House of Representatives.

Republican.		Democratic.	
California	9	Alabama	11
Connecticut	6	Arkansas	8
Delaware	3	Colorado	4
Illinois	24	Florida	4
Indiana	15	Georgia	13
Iowa	13	Idaho	3
Kansas	10	Kentucky	13
Maine	6	Louisiana	8
Maryland	8	Mississippi	9
Massachusetts	15	Missouri	17
Michigan	14	Montana	3
Minnesota	9	Nevada	9
Nebraska	8	North Carolina	11
New Hampshire	4	South Carolina	9
New Jersey	10	Tennessee	12
New York	36	Texas	15
North Dakota	3	Virginia	12
Ohio	23		
Oregon	4	Total	155
Pennsylvania	32		
Rhode Island	4		
South Dakota	4		
Utah	3		
Vermont	4		
Washington	4		
West Virginia	6		
Wisconsin	12		
Wyoming	3		
		Total	447
Total	292	Nec'y to choice	224

C. C. Taliaferro,
NASONS,
VA.

"MOUNT SHARON" STOCK FARM.

Reg. and Grade HEREFORD CATTLE
Registered SHROPSHIRE SHEEP
Registered POLAND-CHINA PIGS.
BRONZE TURKEYS and MUSCOVY DUCKS





NOW OFFERS FOR SALE

HEREFORD CATTLE.—Calves, entitled to registration, $75 to $100. Grade Calves by "Sir Edward" $25 to $40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, $15 to $20. Ewes, one year to three years old, $10 to $12. Buck Lambs, July delivery, $8 to $10. Ewe Lambs, July delivery, $6 to $7.

POLAND-CHINA HOGS.—Pigs, six weeks old, $4 50. Pigs, three months old, $7.50. Pigs, five months and over, $9 to $15.

M. BRONZE TURKEYS.—Toms, $3. Hens, $2.50. Eggs, per sitting of 12, when in season, $3.

MUSCOVY DUCKS.—Pure White Drakes, $1.25. Pure White Ducks, 75 cents. Pairs, $2; trios, $2.75.

ROUEN GEESE.—Ganders, $2.50. Geese, $2. Eggs, per sitting, $2.50.

WILLIAM L. Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for $25 the season. Mares boarded at lowest figures per month.

BACON HALL FARM.

"GOLD STANDARD,"
Related to Champion "Dale," heads Hereford herd.

DORSET SHEEP.
Rams and Ewes, all ages.

BERKSHIRES—All registered stock.

Satisfaction, my motto. E. M. GILLET, Verona, Baltimore Co., Md.

PIGS

Some of the best bred in the United States at farmers' prices.
ARROWHEAD STOCK FARM, Charlottesville, Va.
S. B. WOODS, PROPRIETOR.

BEST WAY TO SMOKE MEATS.

LIQUID EXTRACT OF SMOKE IS CLEAN, QUICK, ECONOMICAL AND CONVENIENT.



Liquid Extract of Smoke is a preparation made from selected hickory wood which has taken the place of the old-fashioned clumsy process of smoking meats in a smoke-house. It is far cleaner and more convenient, and it saves a lot of time and work. The Liquid Extract of Smoke, made by E. Krauser & Bro., of Milton, Pa., is applied to the meat with a sponge or brush, and the meat can be hung at once in the store-room. Liquid Extract of Smoke contains the same ingredients that preserve the meat when it is smoked in a smoke-house. It keeps the meat sweeter and safer than the old way, improves its flavor, the process is perfectly healthful and is a better safeguard against insects which frequently attack meats smoked in the old way. No one who has adopted this way of preserving meats has ever been known to return to the old way with its risks and discomfort. Anyone interested can obtain full information by writing to the manufacturers.

SHRINES GUARDED BY MOHAM MEDANS.

TWENTY RIVAL SECTS WORSHIP AT THE HOLY SEPULCHRE IN JERUSALEM.

Writing in the December *Ladies' Home Journal* on "Jerusalem as We See it To-Day," Mrs. Lew Wallace notes that "there is a common lament that the shrines dear alike to Jew and Christian are in keeping of the Mohammedan. For a thousand years they have been guarded with reverence and decorum by armed officials tolerant of every religion. Were Palestine in keeping of American Protestants debasing our sanctuaries into eating houses and concert-rooms I fear Gethsemane would become a park for picnics, and the Holy Sepulchre, the shrine o. shrines, be made a hall for socials. Twenty rival sects worship there in peace and safety. Were the Turkish guard withdrawn there would be fighting with paving stones and consecrated candlesticks if other weapons were not at hand. The house that is now a house of prayer might be made a den of cooks. Perhaps 'tis better as it is."

WILL TELEPHONE AROUND THE WORLD WITHOUT WIRES.

Wireless telephone and telegraph circuits will span the world in the next hundred years. A husband in the middle of the Atlantic will be able to converse with his wife sitting in her boudoir in Chicago. „We will be able to telephone to China quite as readily as we now talk from New York to Brooklyn. By an automatic signal they will connect with any circuit in their locality without the intervention of a "hello girl."—December *Ladies' Home Journal.*



Easy Harness

All harness, old or new, is made pliable and easy—will look better and wear longer—by the use of

Eureka Harness Oil

The finest preservative for leather ever discovered. Saves many times its cost by improved appearance and in the cost of repairs. Sold everywhere in cans—all sizes.
Made by STANDARD OIL CO.

URY STOCK FARM

HOLSTEIN-FRIESIAN CATTLE, rich in the blood of the greatest cows of the breed A choice lot of **Young Bulls and Heifers,** sired by Ury Alwina Count Paul De Kol and Count De Kol Metchilde. from dams that are large producers. Our herd is larger than ever before, and we will name attractive prices to breeders desiring the richest breeding. The best is always cheapest. Write stating just what you want. Also PLYMOUTH ROCK CHICKENS. **THOS. FASSITT & SONS, Sylmar, Cecil County, Md.**

GASTON STOCK FARM.

Holstein-Friesian & Jersey Cattle.

Having selected my foundation stock from the best I can offer animals of each breed of highest breeding and individual merit. at moderate prices, coniaining the blood of the best families, and bred with great care

I am prepared to sell HOLSTEIN BULLS, and BULL CALVES and JERSEYS of either sex.

JNO. U. DETRICK, Somerset, Va.

JERSEYS For Sale

2 BULLS fit for light service. Sired by Admiral St. Lambert, whose dam, Flower of Meridale, has a record of 53 lbs of milk per day, and 26 lbs. 11½ oz. of butter in 7 dams. The dams of the young bulls have butter records of 18 lbs. 8 oz., and 17 lbs. 4 oz. in 7 days.

Also some **FINE HEIFERS,** sired by Ethels John Bull, and in calf to Admiral St. Lambert, and bred from cows that milk 5 gallons per day. Prices reasonable.

BOWMONT FARMS, SALEM, VA.

Trade-Marks



"BLACKLEGINE."

"Pasteur Vaccine"

SAVES CATTLE FROM

BLACK LEG

Nearly 2,000,000 successfully treated in U. S. and Canada during the last 5 years. Cheap, safe and easy to use. Pamphlet with full particulars, official endorsements and testimonials sent FREE on application.

Pasteur Vaccine Co., Chicago.

BRANCHES: St. Paul, Kansas City, Omaha, Ft. Worth, San Francisco.

REAL ESTATE BRISK.

The Southern Planter Pub. Co., City:

Gentlemen,—In answer to your communication concerning Real Estate business, we must say that it is very encouraging. While we have been advertising liberally, we do not think that it is altogether this that is bringing so many to this State, but that the many advantages of the State are becoming better known; enquiries will average fifty per day, many of them being from Europe, Africa and the West Indies.

We have recently sold Horn Quarter to L. E. Williams. Horn Quarter is one of the grand old Virginia plantations, containing 1,400 acres and located on the Pamunky river, in King William County. A gentleman from Chicago, a friend of Mr. Williams, has also bought a place in the same neighborhood. We have also sold Oak Lawn, another well known and valuable farm, located near Ashland and owned by Mr. C. C. Gerard, to Mr. James Cobb. In addition to those already mentioned, we have recently sold others, but they are not as well known as the above, such as the Meeks Farm to Mr. F. L. Knepper, of Pennsylvania; the Beazley Farm to Mr. E. W. Bowdish, of Brooklyn, and the Proctor Farm to Mr. George Frick.

We trace several of these sales to our adv. in the *Southern Planter*.

Very truly yours,
GEO. E. CRAWFORD & Co.

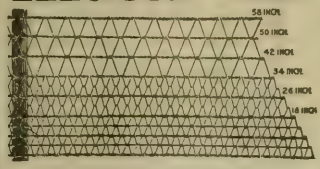
THE CENSUS OF 1900.

A booklet giving the population of all cities of the United States of 25,000 and over according to the census of 1900, has just been issued by the Passenger Department of the Chicago, Milwaukee and St. Paul Railway, and a copy of it may be obtained by sending your address, with two-cent stamp to pay postage, to the General Passenger Agent of the Chicago, Milwaukee and St. Paul Railway, Chicago, Ill.

MEANS OR MEANNESS?

"Bruddren and sistren," sternly said good old Parson Wollimon, after the collection had been taken up upon a recent Sabbath morning, "before de hat was done parsed I expounded de request dat de congregation contribute accawdin to deir means, and I sho expectorated dat yo' all would chip in magnanimously. But now, upon examinin' de collection, I finds dat de concocted amount contributed by de whole entire posse ob yo' am only de significans and pusillanimous sum ob sixty three cents. And at dis junction dar ain t no 'casion for yo' all to look at Brudder Slewfoot, what done circumambulated de hat around, in no such auspicious manner, for, in de fust place, Brudder Slewfoot ain't dat kind ob a man, and in de second place, I done watched him like a hawk all de time myse'f. No, sixty-three cents was all dat was flung in; and I dess wants to say dat, in my humble opinion, instead of contributin' accawdin' to yo' means, yo' contributed accawdin to yo' meanness! De choir will now favor us wid deir reglar melodiousness."—*Harper's Bazar.*

ELLWOOD Steel Wire Fences.



Ellwood Standard Style.

Six styles, all heights, for every fencing purpose on Farms, Ranches, Orchards, &c.

Strong, Humane, Cheap, Durable.

FULLY GUARANTEED.

Heavily Galvanized Best Steel Wires. We have agents everywhere. ELLWOOD FENCES are easy to get, easy to pay for, easy to put up. If you cannot find an agent write to the makers.

AMERICAN STEEL & WIRE CO., Chicago or New York.

..FOR SALE..

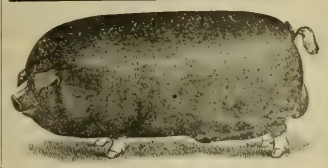
JERSEY CATTLE
Of best families.

GUERNSEY CATTLE
From Imported Stock.

BERKSHIRE HOGS AND PIGS
Sired by sons of Imported STORM KING and COMMANDER.

BRONZE TURKEYS, BARRED PLYMOUTH ROCK and BROWN LEGHORN FOWLS, PEKIN DUCKS; also a few L. BRAMAH and INDIAN GAME COCKERELS. GREAT DANE and FOX TERRIER PUPPIES. Write

M. B. ROWE & CO., Fredericksburg, Va.


TECUMSEH G. No. 49283.

POLAND-CHINAS.

I have a large number of pigs by my fine young boars, "TECUMSEH G." and "MONARCH," and can furnish pairs not akin or related to those previously purchased. Sows in pig and young boars and sows of all ages. Send to headquarters and get the best from the oldest and largest herd of Poland-Chinas in this State at one-half Western prices. Address

J. B GRAY, Fredericksburg, Va.

REMEMBER

VIRGINIA MUST BE 40,000 DEMOCRATIC,



And also REMEMBER I have only a few **SHROPSHIRE SHEEP** I can spare, but I will sell **CHESTER, BERKSHIRE** and **POLAND-CHINA Hogs** and **Pigs** at half price for 30 days

I can furnish **DURHAM** and **JERSEY Cattle** (all sizes and ages) at farmers' prices. **300 B. P. ROCK Chickens.** I will also sell **HIGHLAND STOCK and POULTRY FARM.** Write the owner,

E. B. WILSON, Fancy Hill, Rockbridge Co., Va.

ELLWOOD STEEL FENCES.

The name of Ellwood is one of the most familiar names of manufacturers to the agricultural communities of America by reason of the long association of that name with the leading and most popular brands of barbed wire, Mr. Isaac L. Ellwood having been one of the original inventors of barbed wire and prominently identified with the growth of that industry and the improvement of that product.

It was always an axiom in the trade, that anything bearing the Ellwood stamp was absolutely reliable, and of the highest grade, and of the woven wire fences bearing the Ellwood name the same is absolutely true.

The development of the wire industry in America has been very great the last decade, and the improvement in quality of wire used in the Ellwood woven wire fences, advertised elsewhere in this issue, is one of its best evidences. There is a wide difference between the ordinary fence wire and the wire used in making Ellwood wire fences. This wire is a hard steel especially made to resist the sort of wear and tear to which a fence is subjected, and it is specially galvanized with a heavy coating, in order to insure against rust and guarantee a long life.

The Ellwood Fences comprise several varieties or styles, furnished in heights from 18 to 58 inches. The Ellwood standard style is the leader of these fences, the 26 in. height of this fence being a great favorite as a hog and pig fencing. The Ellwood special fence is similar to the standard, but it is somewhat lighter, by reason of the use of less wire in a wider mesh. The Ellwood Perfect, The Ellwood Lawn, The Ellwood Poultry and Rabbit, and Ellwood Crib are the other styles of Ellwood fencing designed for particular uses but each complete and efficient for general use as well.

It will pay all of our readers to secure the complete catalogue of Ellwood fences, which they can have by writing to the manfacturers, the American Steel and Wire Co., Chicago, or New York, or by visiting the local agents through whom the fences are sold in over 15,000 towns and cities in the U. S. and Canada.

FIVE HUNDRED MILLION AMERICANS BY THE YEAR 2000.

There will probably be from 350,000,000 to 500,000,000 people in America and its possessions by the lapse of another century. Nicaragua will ask for admission to our Union after the completion of the great canal. Mexico will be next. Europe, seeking more territory to the south of us, will cause many South and Central American republics to be voted into the Union by their own people.—December *Ladies' Home Journal.*

XMAS GROCERIES—STAPLE AND FANCY.

We ask our readers to look over the prices of goods offered by D. O'Sullivan, of Richmond, in this issue, before buying. He can save you money.

A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.



DIAMOND GALVANIZED STEEL WINDMILLS AND TOWERS
THOROUGHLY TRIED AND NOT FOUND WANTING.
ONLY MILL RUST, DUST, SAND, SLEET AND RAIN PROTECTED.
TOWER CLIMBING REQUIRED. NOISELESS. OF SMALLEST GEAR WORKED. WITHOUT DISTURBING OCCUPANTS.
NOTHING IS CHEAP UNLESS WELL MADE
IN 1899, THOUSANDS IN OPERATION. WE SHIPPED LESS THAN $100 IN REPAIRS. THIS IS UNPRECEDENTED. NO MILL MADE WILL RUN IN AS LIGHT WINDS—THIS WITH DUPLEX VANE DETERMINES EFFICIENCY. WE GUARANTEE OUR 6 AND 7 FOOT MILLS EQUAL IN PUMPING CAPACITY TO 8 FOOT MILLS OF OTHER MAKES; OUR 8 FOOT EQUAL TO 10 FOOT; OUR 10 FOOT EQUAL TO 12, OR 12 FOOT OF OTHER MAKES. NO CONTRACT OR PIECE LABOR EMPLOYED IN THEIR MANUFACTURE. ALL CASTINGS ARE "A NO. 1" SHAFTING MADE OF COLD ROLLED STEEL. BEARINGS ARE SUPERIOR TO GRAPHITE. OUR STEEL TOWER STANDS SEVEREST STORMS; IS THE ONLY TOWER PROVIDED WITH DOOR OPENINGS. EVEN AN INEXPERIENCED MAN CAN ERECT.
SEND FOR OUR ILLUSTRATED WINDMILL BOOK.
DIAMOND GALVANIZED STEEL WINDMILL.
THIS IS OUR 47th YEAR. MENTION THIS PUBLICATION
THE TEMPLE PUMP CO., MANUFACTURERS, CHICAGO, ILL.



I AM OFFERING 100 CHOICE
Improved Chester White Pigs
(All eligible to registry in N. C. W. R.)
Sired by 5 prize winning boars. Also pure SCOTCH COLLIE (Shepherd) pups.
ARCHIE C. ROPER,
Lock Box 122. Charlestown, Jeff. Co., W. Va.

Hill Top Stock Farm OFFERS FOR SALE ..... A LIMITED NUMBER OF
SOUTHDOWN and SHROPSHIRE SHEEP.
Some grand SHROPSHIRE lambs of either sex.
A GRAND LOT OF BERKSHIRE HOGS.
Young sows bred to elegant boars, and young boars ready for service.
Come and see our stock, or write for description and prices to
H. A. S. HAMILTON & CO., Staunton, Va.
Parties will be met at train with conveyance, if we are notified in time. We are always glad to show our stock.

BILTMORE FARMS,
BILTMORE, N. C.
BILTMORE JERSEYS have been bred and culled for many years on the basis of milk and butter production. At the same time their Show Yard record for the last two years at the leading Fairs of the East and West is a greater one than has ever been made in the same length of time by any other establishment so far as we know. It includes 56 Sweepstakes (3 Grand Sweepstakes over all breeds, 3 Gold and 3 Silver Medals); 14 First and 8 Second Herd Prizes; in class, 85 Firsts, 63 Seconds and 15 Thirds. A grand total of 241.
..BILTMORE BERKSHIRES..
REUBEN GENTRY, MANAGER.
HEADQUARTERS FOR IMPORTED BLOOD, and the produce of Champions both of America and England. Show Yard record for 1899 and 1900: 100 Sweepstakes (including 8 Grand over all breeds); 30 First and 32 Second Herd Prizes; in class, 250 Firsts, 209 Seconds and 45 Thirds Grand total 717.
BILTMORE POULTRY. Specialties: Barred and White Plymouth Rocks, Golden, Silver and White Wyandottes. At the leading Eastern Shows (Washington, Hagerstown, Atlanta, etc) 908 premiums were awarded to Biltmore Poultry.
APPLY TO **GEO. F. WESTON, SUPT.**
BILTMORE, NORTH CAROLINA

JACKS AND JENNETS.

Messrs. W E. Knight & Co., Nashville, Tenn., are advertising, in another column, an extra lot of finely-bred jacks and jennets. Write them for prices.

SOMETHING NEW FOR GIRLS AND BOYS.

During the past year "St. Nicholas" Magazine, which has been for nearly thirty years the leading children's monthly magazine of the world (and now the only one), has introduced several new departments, which have been extremely attractive and have greatly increased the circulation. One of these is "Nature and Science."

"Don't bother me—I'm too busy"—is too often the remark from a grown-up person to a child who really wants to know. The editor of "Nature and Science" gives careful attention to every question asked by his young readers, and "We will write to St. 'Nicholas' about it," has become the motto of the department, which contains interesting short articles, beautifully illustrated, telling of four-footed animals, birds, insects, water animals, plants, and whatever pertains to Nature.

"St. Nicholas League" is an organization of those who read the magazine (whether subscribers or not), without dues, and it offers prizes each month for the best drawings, photographs, poems, stories, puzzles and puzzle answers. Some of the work sent in by young folks shows surprising talent.

No one who does not see "St Nicholas" can realize what an interesting magazine it is, and how exquisitely it is illustrated; it is a surprise to young and old. Of literature it contains the choicest, and in art it has never been surpassed by any grown folks' periodical. The new volume begins with November, 1900, and the subscription price is $3.00 a year. If there are children in your home, you can hardly afford to be without it.

Boys and girls who read this advertisement, and who wish to find out more about the St. Nicholas League and its system of monthly prizes, may address without cost The St. Nicholas League, Union Square, New York. The Century Company, Union Square, New York.

BAGGING A PEER'S CALF.

The moors of Yorkshire and Scotland have been alive with shooters. The crack of the gun has been heard on every hand, for grouse shooting has opened for the year. During the shooting season in Great Britain accidents are comparatively rare, considering the first-class opportunities to blow off a companion's head or drill a hole through his back.

But accidents do happen, and the first man to be shot this season was Lord Binning. The noble lord is a bit of a wag, and even when half of his leg was perforated with shot from his own gun and he was sitting against a hedge, waiting for a stretcher to be brought, his wit did not desert him, for, as the doctor was binding up his wounds, he remarked:

"I came out to kill grouse—but 'pon my soul I seem to have bagged a calf."—From the *Saturday Evening Post*.

For over two generations the IRON AGE implements have been helping farmers to secure best results. Every year in that time we have been making these labor savers better than before. To-day they are successful beyond question; durable beyond comparison; economical beyond doubt. One of this year's additions to the

Since 1836

IRON AGE

Farm and Garden Implements



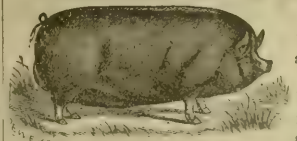
is the No. 15 IRON AGE Combined Single Wheel Hoe, Hill and Drill Seeder. A wonderful combination making two perfect implements, each complete in itself. Can be instantly changed from seed drill to wheel hoe or back again.

Let us send you **free** the IRON AGE book for 1901, describing Seed Drills, Wheel Hoes, Riding Cultivators, Potato Planters, Horse Hoes and Cultivators. Many say it started them on the road to success.

BATEMAN MFG. CO.,
Box 167, Grenloch, N. J.

Registered Berkshires

"MAYOR OF BILTMORE" and "COUNTRY GENTLEMAN" at Head of My Herd.



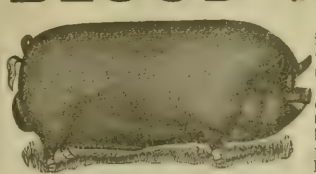
I can furnish pigs from noted sows, "Eloise," "Bertha," "Miss Linwood," "Queen Quality" and "Queen Narka."

I also offer **Holstein-Friesians** (Netherlands, Pietertjes and Clothilde), all rich, heavy milkers. All of my cattle are magnificent specimens of the breed.

English Beagle Dogs, Brown Leghorns and Plymouth Rock Chickens.
Correspondence solicited,

Southern and N. & W. Rys. **T. O. SANDY, Burkeville, Va.**

BLOOD WILL TELL



THOS. S WHITE'S reputation for keeping the finest imported large BERKSHIRES on this side of the Atlantic has spread so rapidly that his sales for the past two months have been simply enormous, and in consequence, he has sold out all surplus till towards spring save about eight big mellow boars, some of them ready for service Imported SIR JOHN BULL the head of my herd, a VERITABLE KING OF HOGS, is as gentle, kind and superb as when he landed in this country over two years ago. Metamorphose your herd with his aristocratic blood.

Fassafern Stock Farm. **THOS. S. WHITE, Lexington, Va.**

* VIRGINIA DIVISION. *

Farmers Mutual Benefit Association.

A Fire Insurance Association, chartered by the State for the farmers of Virginia, under an amended and well protected plan.

Insures, against Fire and Lightning, only country property—no stores or unsafe risks. Average cost per year for three and a half years has been $4.00 per $1000, including dwellings, barns, produce, &c. Cost in 1899, $2.00 per $1000. Amount of property insured $250,000. Estimated security in real and other estate, $600,000.

For further information, address, **CHAS. N. FRIEND, General Agent,**
MENTION THIS JOURNAL. **CHESTER, VIRGINIA.**

COFFEE—FROM BLOSSOM TO CUP

AN IMPORTANT FEATURE OF THE PURE FOOD AND FOOD ACCESSORIES EXHIBIT AT THE PAN AMERICAN EXPOSITION.

Long before coffee was generally known throughout Europe, Lord Bacon wrote: "They have in Turkey a drink—coffee—which comforteth the heart and aideth digestion."

The elaborate coffee exhibit in the Manufacturers and Liberal Arts Exhibition Building at Buffalo next year, in the section devoted to foods and their accessories, will demonstrate how Lord Bacon's opinion has descended to succeeding generations. Coffee, at the Exposition, will receive the attention that is due the most popular beverage the gods ever bestowed upon man.

Foods and their accessories will receive at Buffalo more elaborate attention than has ever been given to a like exhibit. The object is to familiarize the people of Pan (all) America with the food products of the whole American continent. The exhibit will be housed in a beautiful building, which is a third of a mile in circumference, and as elegant in appearance as it is magnificent in its proportions.

Coffee, being one of the widely known articles of this exhibit, has been selected for description as a type of what may be expected in a hundred other products, each of which will receive at the hands of Mr. G. Edward Fuller, the manager of this department, the same painstaking care as the subject of this article.

Coffee grows more like a cherry than anything else with which people in north temperate latitudes are familiar. The tree, if allowed to grow naturally, will attain a height of 20 feet, though it is often pruned to keep the branches within reach when standing on the ground. For beauty it cannot be excelled even in the tropics. With its deep green shining leaves and pure white, fragrant, though transitory blossom, together with the ripening fruit, it produces a picture peculiarly effective.

The fruit, first a tiny green ball, changes to pale red as it develops, and finally, when ripe, the color is a rich brown. It has a pleasant flavor, though rather sweet and somewhat insipid. Its pit is the coffee bean of commerce. Each fruit contains two beans, which grow with the flat sides together in separate cells, though, should one become abortive, the other grows round and fills both cavities.

These rounded berries are separated, and sold as Pea Berry Mocha, because of their resemblance to the genuine. These abortive cells occur usually toward the ends of the branches and are encouraged by pruning.

Mocha is the oldest coffee known to commerce. Where or how it originated is shrouded in prehistoric mystery. Tradition says the seeds were imported from Abyssinia and Ethiopia and planted in Arabia about the beginning of the fifteenth century. However, it adapted itself readily to the soil and climate, especially in the southern part of Arabia, where it has formed the principal article of export ever since.

"CORRECT DRESS FOR MEN AND BOYS."

There is one point about which there can be no two opinions, if judgment rests on the facts as you find them: if you want the best

Overcoat or Suit

the money you want to spend can buy, WE CAN GUARANTEE YOU'LL GET IT HERE.

You can spend as little as $7.50 and get satisfaction, and as much as $40. wisely.

GANS-RADY COMPANY,
Entire Building—1005 E. Main St.
Opposite Postoffice, RICHMOND, VA.

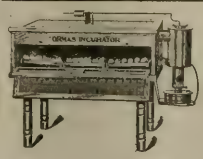
The Cyclone Grubber

ONLY $3.00.

It is one of the handiest tools on the farm. Can be operated by one or two men. Made of solid steel, and will last a lifetime. It takes up roots and branches thoroughly. Unequalled for grubbing out fence corners. **Agents wanted.** Circular free.

J. G. O'DONNELL, Patentee,
Leon, Madison Co., Va.





Incubators from $5.00 up.
Brooders from $3.80 up.

FREE CATALOGUE. Fully Warranted, on trial.
No Moisture Required. Latest Improved.
L. A. BANTA, Ligonier, Ind.

ROCK HILL FARM.

A PAIR OF WEANLING FILLIES 6 and 7 mos. old; weight 675 and 725 lbs. each; one of them a seal brown, sired by a Registered Morgan, and eligible to registry; the other a black with star, sired by a half brother of Star Pointer, 1:59¼. This filly shows all the gaits and will grow to a 16 hands mare.

B. B. BUCHANAN, Brownsburg, Va.

DO YOUR TRADING..

Where an established reputation warrants continued confidence. The name of LUMSDEN on anything in the JEWELRY or SILVERWARE line is a STANDARD of QUALITY.

FINE GOLD AND DIAMOND JEWELRY,
STERLING SILVERWARE AND CUT GLASS.

SIX SOLID STERLING SILVER TEA SPOONS, $3.40. Write for our catalogue; it contains many articles on which we can save you money.

C. LUMSDEN & SON, Established 1835, 731 E. Main St., Richmond, Va.

Mokha, a small town on the coast of the Red Sea, gave its name to this coffee, because it happened to be the port where the camel caravans unloaded and the shipments to the outer world were made.

Java coffee gets its name from the island of Java, though the great bulk of Java coffee now comes from American plantations lying between the 30th parallels of latitude north and south. When conditions are favorable, Pan-American coffee is fully equal, if not superior, to the best foreign grown. If any one doubts this statement, one of Mr. Fuller's exhibitors will be prepared to prove it with a delicious concoction prepared from purely American blends.

Old Government Java originally got its name when the government of Holland compelled native Malay planters on the island to pay their taxes in coffee. Government godowns (warehouses) were built in which coffee was required to be warehoused seven years before offering it for sale. There are people who say that was no improvement, that the berry does not improve with age, but the probability is those people have never had an opportunity to sample genuine Java coffee seven years old. Java is an exception in this respect, as most coffees do not improve after the second year. There is not profit enough in the business to hold coffee such a length of time, though some do so in a limited way. Those who really love a fine coffee flavor, and want the last vestige that is contained in the bean, may get from certain dealers American coffee, in which the natural aroma has been so carefully developed that it will equal any Old Government Java the good dames of Holland were permitted to serve.

Coffee is sold by the cup in New York for one cent; it is also sold for twenty-five cents, a greater range of price than any other known commodity. Prices of the green berry in the open market vary nearly as much. It is the beverage of the poor, the great mass of workers, and the wealthy.

The United States is the largest coffee market in the world, though Holland uses more per capita. Our imports during the fiscal year ending June 30th, 1899, amounted to 578,397,454 pounds, which shows the importance of this market. Coffee-growers to the south of us will appreciate this when they visit the Exposition and see the coffee exhibit.

HERBERT SHEARER.

When the chimney is cold, it is often difficult to light a fire without making a great deal of smoke. To prevent this, burn a few pieces of paper in the chimney or smoke flue and thus start an upward current.—December *Ladies' Home Journal.*

CHEAP XMAS GROCERIES.

We invite the attention of our readers to the advertisement of Ullman's Son, of Richmond, in this issue.

"If a cobbler by trade, I'll make it my pride
The best of all cobblers to be,
And if only a tinker, no tinker on earth
Shall mend an old kettle like me."



Elmwood Nurseries.

We offer a splendid assortment of first-class Whole Root Home Grown Trees Standard Varieties.

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QUINCES, CURRANTS, GOOSEBERRIES, RASPBERRIES, BLACKBERRIES, STRAWBERRIES, ETC., EVERGREENS, ORNAMENTAL TREES AND SHRUBS.





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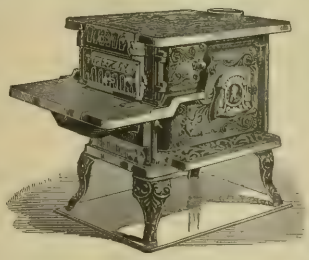
Apples,	Nectarines,	Pecans,	Ornamental and
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CALIFORNIA PRIVET, for Hedging. WRITE FOR CATALOGUE.

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The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever Journal you wish.

	PRICE ALONE.	WITH PLANTER.
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The Dispatch, Richmond, Va.	$5 00	$5 25
The Times, " "	5 00	5 00
The Post, Washington, D. C.	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.	1 00	1 25
The Times, " "	1 00	1 25
The World (thrice-a-week), N. Y.	1 00	1 25
WEEKLIES.		
Harper's Weekly	4 00	4 00
" Round Table	1 00	1 35
" Bazaar	4 00	4 00
The Baltimore Sun	1 00	1 35
The Washington Post	75	1 05
Breeder's Gazette	2 00	1 75
Hoard's Dairyman	1 00	1 35
Country Gentleman	2 00	2 25
Religious Herald, Richmond, Va.	2 00	2 25
Southern Churchman, " "	2 00	2 25
Central Presbyterian, " "	2 00	2 50
Christian Advocate, " "	2 00	2 25
Turf, Field and Farm	4 00	4 00
Horseman	3 00	3 00
MONTHLIES.		
North American Review	5 00	5 00
The Century Magazine	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harper's "	3 00	3 25
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 35
Cosmopolitan "	1 00	1 25
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan "	1 00	1 35
Review of Reviews	2 50	2 75

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish *no sample copies* of other periodicals.

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RED CLOVER.
MAMMOTH CLOVER.
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JOHNSON GRASS.
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BUCKWHEAT.
OATS and
CANE SEED.

"Whatsoever One Soweth That Shall He Reap."

We sell strictly reliable FIELD AND GARDEN SEEDS of every variety at Lowest Market rates, included in which are RAGLAND'S PEDIGREE TOBACCO SEEDS.

WE ALSO SELL

Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

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And all other desirable standard and new varieties of PLUMS, APPLE, PEACH, PEAR and ORNAMENTAL TREES, SHRUBS, ROSES, Etc.

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The Most Reliable Variety Ever Grown in the South.

Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogues free.

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OLD DOMINION NURSERY, RICHMOND, VA.

THE WESTINGHOUSE CORNER IN MESSENGER BOYS.

Mr. George Westinghouse, of Pittsburg and Washington, the great brake-millionaire, has a small son and heir of whom he is very proud.

This pride is only a recent development. The boy has always been the mother's idol, but the father has till lately concentrated his interest in life in his electric and mechanical appliances.

Young Westinghouse was amusing himself in his play-room, one day, with a train of cars, when the father looked in on him. He asked the boy what he would like to be when he grew to be a man.

The youngster looked at the toy coupling-pin he had in his hand and said: "An inventor or an engineer."

Imagine how that delighted the father! Since that day the boy has often been taken to the great Westinghouse works and is allowed to investigate every piece of machinery with a faithful guide. Mr. Westinghouse is now entirely wrapped up in him. Taciturn as he is to outsiders, he will talk to his boy for hours, and never tires of showing him the uses of machinery. They are great comrades.

At the approach of the boy's birthday, while they were in Washington, he was asked by his mother what he would like to do. "Go to Pittsburg," said he, "and see the works." The family left at once and took possession of their Pittsburg home. The father went, too, and the night before the birthday he asked his son what he wanted for a gift the next day.

"A great big party, sir," he answered.

"In twenty-four hours!" said the mother, aghast.

"He shall have it," said the father; and he ordered three secretaries to write the words of invitation on the requisite visiting cards that night. There were over six hundred invitations, and the work was not finished until too late for the mail, so Mr. Westinghouse went down town and hired every messenger boy in the city of Pittsburg for the day.

The invitations were delivered and the lad had the greatest party of the year; but for all that day the rest of Pittsburg rang their call bells in vain. There was a corner in messenger boys, and young Westinghouse controlled absolutely.—From the *Saturday Evening Post.*

A WONDERFUL OFFER TO WOMEN.

We have received word of a most remarkable offer which is to be made to women by *The Delineator*, of New York.

Taking the fact that next year begins a new century, *The Delineator* offers to distribute $17,500 among 1901 women. The plan is so cleverly arranged that a woman living in a small town or village has just as good a chance to win one of these 1901 prizes as a woman living in a city—because the prizes are given for the number of subscriptions secured in a town in proportion to the population of that town, instead of being given simply to those who send the largest list of subscribers—which, of course, are most easily obtained in big cities.

My Beloved Brethren!

My text is taken from sixteen years of hard work, looking for bargains and laying them before you. Here is a sample:

640 bus. Finest German Red Top Clover, per bus	$6 25
1 000 tons Finest Timothy Hay, per hundred	80
10,000 bushels Finest Water-Ground Meal	55

I take Country Produce in exchange for goods.

5 dozen Extra Fine Cut Herring for	38
25 barrels Large Mackerel, each weighing 16 oz	05
10,000 Sugar-Cured Bacon Sides	09
10,000 bushels Finest Feed Oats	35
3,000 bushels Fine Clover Seed	4 75
Finest Family Laundry Soap, 10 bars	30
600 barrels Fine Rock Lime, per bbl	1 15
87,000 lbs. Rock Salt for your stock. Every farmer should keep 8 to 10 large lumps of salt in the stalls of his stock. It costs only one cent per lb.	
800 barrels Finest Byrd Island Family Flour	4 50

This flour is made from wheat grown in the garden spot of the South, "Valley of Virginia." It makes 40 lbs. more bread than any other flour made, keeps moist, and has a fine flavor. Order a barrel when in need.

487 bushels Choice Timothy Seed, bushel	2 30
1,500 bushels Finest Rye, per bushel	68
Gibson's Old Rye Whiskey, per quart	75
Duffy's and Kirby's Malt Whiskey, per quart	75

Either of these brands are sure cure for dyspepsia, consumption or lung trouble.

1,006 bottles Imported Gin, per quart	40
Clemmer's Old Rye Whiskey, per quart	40
New Mixed Nuts, per lb	12½
Seedless Raisins, per package, 10c.; Cleaned Currants, per package	10
New Citron, per lb	12
Finest Sherry Wine, per gallon	75
Imported Catawba Wine, per quart	15

We keep the largest stock of Groceries and sell cheaper than any house this side of New York. Send me five names of your neighbors, and I will send you a handsome picture. Send for my latest price list. It contains as much information about what to learn as Webster's Dictionary.

Yours devotedly,

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THROUGH ITS CONNECTIONS

THE BIG FOUR SYSTEM, from Chicago, St. Louis, Peoria, Indianapolis, Sandusky and Cleveland;

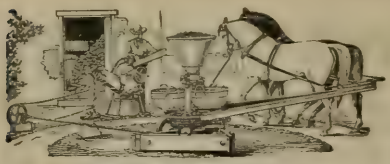
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The Genuine Oliver Chilled Plows and Repairs.
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Corn Shellers, Tread and Sweep Powers,
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Chattanooga Cane Mills and Evaporators.



DON'T FORGET..

All the merchants in town who claim to sell Oliver Plows and Repairs, only sell the Imitation. Bogus, Cheap Goods. The only place in Richmond, Va., to buy Genuine Oliver Plows and Repairs is at 1436-38 E. Main St., of Chas. E. Hunter.

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Have larger capacity; require less power; are built stronger.

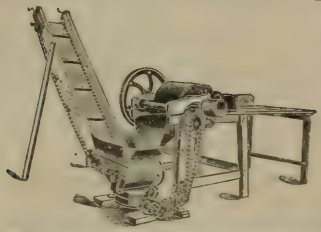
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With Blower or Carrier. Manufactured in four sizes: Large machines for threshermen, and small machines for farmers' own use.

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Hollow Steel Axle WAGON leads all competitors for a cheap and durable wagon. Get our prices. We have a large stock of



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Send for special catalogue. We carry at all times a full line of

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Improved **TORNADO Disc Harrow** the best implements for the farm. Practically indestructible. Easy of operation. Gangs set at any angle.

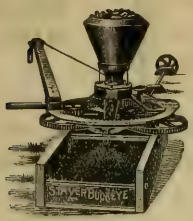
We are agents for ARMOUR & CO.'S FERTILIZERS.

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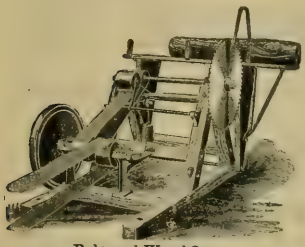
1433 East Main Street, - RICHMOND, VIRGINIA.

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Implements and Machinery



Combined Mill and Power.
Indispensable to every farmer.



Pole and Wood Saw.



Grain and Fertilizer Drills



Farm and Freight Wagons.

ENSILAGE and FEED CUTTERS.

The improved CRUSHER on these cutters crushes the stalks thoroughly, and leaves them in perfect condition for feeding and far superior to any shredded fodder.

THE COMBINED FEED MILL and HORSE POWER

Is indispensable to every farmer. Grinds shelled corn, ear corn, and is a first-class horse power. Virtually three machines in one.

POLE and WOOD SAW

For cutting cord-wood, slab wood, or poles.

DISC HARROWS

With roller and ball bearings. Light draft and perfect in work.

THE BUCKEYE GRAIN and FERTILIZER DRILLS

With hoes or discs. Glass fertilizer feed and perfect force feed.

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From 4 to 100 H. P. for all purposes.

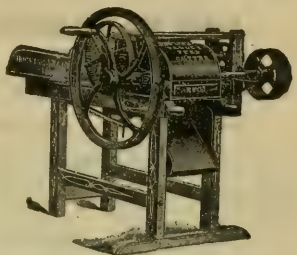
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For horse or steam power.

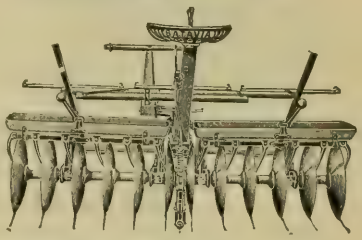
CANE MILLS and EVAPORATORS, CORN SHELLERS, LAND ROLLERS, HARROWS of all kinds.

THE HANCOCK DISC PLOW.

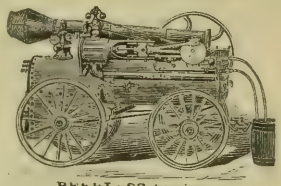
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Feed and Ensilage Cutters—All sizes.



Disc Harrows—All Sizes.



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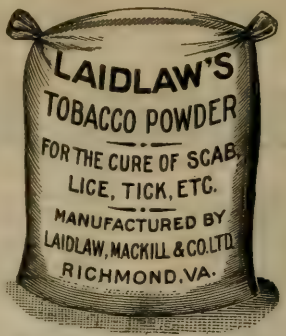
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Extract of Pure Tobacco.

..SHEEP DIP AND CATTLE WASH..

Put up in 1 lb., 7lb. and 14 lb. tins. **Price, 30 cents per pound, free on cars Richmond.**



LAIDLAW'S

Tobacco Powder

SHEEP DIP AND CATTLE WASH.

Put up in 5, 10, 50 and 100 lb. bags.

Price, 10c. per lb.

Sure and speedy remedies for SCAB, TICK, LICE and all the various forms of Vermin that infest live stock.

Nicotine dips are fast gaining in favor with the farmer and are coming to be recognized as the only really effective eradicators of vermin on all stock.

READ WHAT THE FOLLOWING SAY ABOUT THEM.

Mr. A. C. BROWNE, of Centre Cross, Essex Co., Va., writes:

I have pleasure in testifying to the efficacy of your pure Tobacco Extract and Sheep Dip Powder for cleansing cattle of lice. I used both of them on a herd of young calves, and also on old stock that were very badly infected with lice, and after one aplication they were freed of all the vermin. I feel sure in saying that from the action of it on cattle, that it will destroy vermin on any kind of stock, and I can strongly recommend it to all farmers who have lice or other vermin on their stock, and wish to get them into a good healthy condition.

Mr. K. H. CORNWALL, Wilton, Va., writes:

After trying your Tobacco Extract on my flock of sheep and Angora goats, I have pleasure in stating that it eradicated all vermin, and I consider it a very sure cure for lice, and all vermin on sheep, goats and hogs. I can strongly recommend it to all farmers who have vermin on their stock.

Mr. FRANK H. HILL, of Victoria, North Carolina, writes

I find that for lice on cattle it is beyond doubt the best remedy I have ever tried, as also for sheep ticks. I have not yet had sufficient time to test its efficacy for scab on sheep, but am sure it is equally good for that also.

We ask you to give it a trial and feel sure you will not be disappointed. Manufactured by

LAIDLAW, MACKILL & CO., Ltd., 3400 to 3500 Williamsburg Ave., RICHMOND, VA.

Pedigrees traced and tabulated. Catalogues compiled and circulars prepared Special attention given registration matters pertaining to thoroughbred, trotting and other breeds of horses.

..FOR SALE..

Fast Trotters and Pacers Fine Road and Saddle Horses

..BY..

W. J. CARTER (Broad Rock,)

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SOUTHERN PLANTER, Richmond, Va.
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..FOR SALE..

Either Singly or in Carload Lots.

The large and commodious stables at No. 1917 East Franklin have recently been purchased and fitted up in first-class shape by Mr. George D. Bennett, who has placed in charge Mr. JOHN S. WHALEY, well and favorably known on this and other horse markets.

Horses of all classes constantly on hand and also mules of various grades, ranging from the small cotton mule to those of the largest size suitable for draft purposes and lumbermen.

FINE DRIVING AND SADDLE HORSES

A SPECIALTY.

Orders by mail solicited. Address

JOHN S. WHALEY, Manager,

1917 E. Franklin St., RICHMOND, VA.

MR. JOHNSON AND HIS TIP.

Mr. Tom L. Johnson, the famous street-car magnate and Single Taxer, is well known by his friends to be a generous man, but he admits that he could never become reconciled to the "tipping" habit so prevalent in Europe; and he tells this story on himself:

In front of the hotel where he stayed in London, on a recent visit, there was always standing a man who had the annoying habit of darting out to the carriage and swinging open the door before Mr. Johnson could reach it, and then he would stand expectantly to receive a tip.

"Now," says Mr. Johnson, "I shouldn't have cared if the man had come to me and said he needed assistance, but I really didn't need him to open the carriage door. The driver and myself could have managed it between us, I'm sure.

"Well, it began to be a point of honor with both of us. I would try to dash out so quickly that the man couldn't possibly beat me, but he must have had gimlet eyes and rubber legs, because he could always see me before I came in sight and could spring to the carriage door in half a second.

"But one day—how it happened I never could tell—I reached the carriage door first, and swung it open, panting but triumphant. The man was right after me—almost on top of me—and a look of keenest chagrin came over his face as his eyes met my triumphant glance. But his confusion was only momentary, for in an instant he recovered himself, and, with a look of serenest impudence, saluted and then held out his hand for a tip, saying:

"'I *saw* you get in, sir!'"—From the *Saturday Evening Post.*

SKIMMING IT.

"If you are going to give a pan of milk, don't skim it first," the old grandmother used to say, meaning: If you are going to do a favor, don't spoil it by an ungracious word or manner. Haven't we noticed how much of this "skimming" goes on in ordinary family intercourse? asks the *Christian Uplook.*

"Another errand? I never can go down town without half a dozen commissions!" complains Bob, when his sister asks him to bring a book from the library. He never refuses to oblige her; he does not really count it an inconvenience; he only takes the cream off his kindness.

"Those gloves ripped again!" exclaims Mary, when John wants her to take a few stitches. "It seems to me they always need mending when I am in a hurry with something else." She would be shocked at his going shabby, and distressed if any one thought her unwilling to render such offices; but she makes it a little unpleasant to ask the favor.

The children follow the fashion. Tommy shuts the door at Bridget's request, but he grumbles at having to leave his top. Susie goes to the door when she is sent, but she departs with a protest that "it is Tommy's turn." Thus all day long people who love one another, and who at heart are glad to serve one another, skim the sweetness from every service they render.



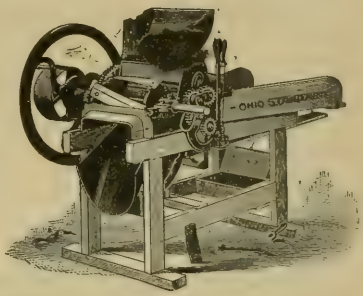
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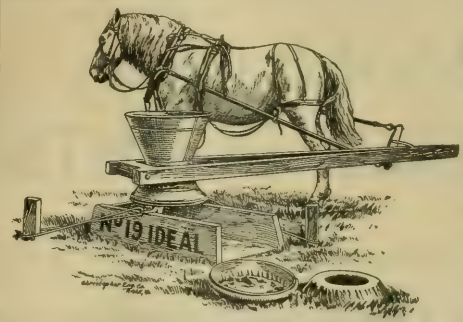
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Call and see our splendid stock of **Buggies and Carriages.** Illustrations and price list free to all applicants.

THE OHIO FEED AND ENSILAGE CUTTER, for hand or power, with or without Carrier, is the strongest, simplest and best Cutter offered. Can be easily regulated to cut feed from one-fourth inch to two inches long.



This splendid

No. 19 IDEAL

Mill for GRINDING CORN and COB, we are selling complete, including Mill and Horse Power, as illustrated, for the small sum of $14.00. Send in your order at once. Large sizes of mills on hand; particulars on application.

THE IMPLEMENT CO., 1302-1304 E. Main St., Richmond, Va.

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Merchants National Bank

OF RICHMOND, VA.

Designated Depository of the United States, City of Richmond and Commonwealth of Virginia.
Being the Largest Depository for Banks between Baltimore and New Orleans, this Bank offers superior facilities for direct and quick collections.

Capital Stock, $200,000
Surplus and Profits, $375,000

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BIG BARGAINS IN CHRISTMAS GOODS

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OUR POPULAR BRANDS OF FLOUR.

PILLSBURY FLOUR, per bbl., $4.90.
JEFFERSON Spring Wheat Flour, bbl., $4.75 ; bag, 30c.
SILVER KING Patent Family Flour, bbl., $4.35 ; bag, 28c.
SNOW FLAKE Patent Family Flour, bbl., $4 ; bag, 25c.

New Seeded Raisins, per lb	10
New Cleaned Currants "	12½
Four pounds New Figs	25
New Citron, per lb	12
New Lemon Peel, per lb	12
New Layer Figs, "	10
New Currants, "	12
New London Layer Raisins, per lb	10
Arbuckle's Ariosa Coffee per lb	12½
Green Laguayra Coffee, "	10
Lion Coffee, "	11
Sweet Chocolate, per cake	5
Baking Chocolate, 2 cakes for	25
Baker's Cocoa, per package	10
Welcome Cocoa, can	8
Jellies, home made, per lb	8
Gelatine, Rival brand, and best on the market, per package	5
Chalmer's, 8 cents or 4 for	30
Baker's Gelatine, 9 cents or 3 for	25
French Candy 6 cts. or 4½ lbs. for	25
All Cream Candy, 9 cts. or 3 lbs. for	25
Xmas Candy, 9 cents or 3 lbs. for	25
Chocolate Drops	15
Caramels, 9 cents or 3 lbs. for	25
Stick Candy, all flavors	8
Chewing Gum, 6 in package	1
Penny Candies, box	45
Sour Pickle, per gallon	20
New Mixed Nuts, per lb	11
Best French Candy, 4¼ lbs. for	25
New Cocoanuts	5
New Raisins, per lb., 9 cts., or 3 lbs. for	25
Large bottles Essence Lemon	5
Large bottles Extract Vanilla	5
Shelled Almonds, per lb	35
New Prunes, 6 lbs. for	25
New Seedless Raisins, per lb. 9c., 3 lbs	25
New Sultana Raisins, per lb	12½
Nine packages Fire Crackers for	25

WINES AND LIQUORS.

Sweet Catawba Wine, per quart	10
Blackberry Wine	10
Quart Bottles Imp. Port Wine	35
Quart bottle Sherry Wine, Imported	35
Quart bottle Congress Whiskey	1 00
Quart bottle Gin, Imported	90
Best Claret Wine, per gallon	50
Wine for Jelly	40
Rye Whiskey	1 25
Old Rye Whiskey	1 50
Fine N. C. Corn Whiskey, 3 years old	2 00
Pure Old Virginia Apple Brandy	2 00
New England Rum	2 00
Blackberry Brandy, per gallon	60
Pure Va. Peach Brandy, per gallon	2 00
Sweet Cider, per gallon	25
Va. Claret Wine, per gallon	50
Duffy's Malt Whiskey	85

COUNTRY PRODUCE OF ALL KINDS TAKEN IN TRADE.

DOWN-TOWN STORE,
1820-1822 E. Main St., RICHMOND, VA.
'PHONES: OLD 316; NEW 509.

UP-TOWN STORE,
506 E. Marshall St., RICHMOND, VA.
'PHONES: OLD 35; NEW 34.

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MR. JOHNSON AND HIS TIP.

Mr. Tom L. Johnson, the famous street-car magnate and Single Taxer, is well known by his friends to be a generous man, but he admits that he could never become reconciled to the "tipping" habit so prevalent in Europe; and he tells this story on himself:

In front of the hotel where he stayed in London, on a recent visit, there was always standing a man who had the annoying habit of darting out to the carriage and swinging open the door before Mr. Johnson could reach it, and then he would stand expectantly to receive a tip.

"Now," says Mr. Johnson, "I shouldn't have cared if the man had come to me and said he needed assistance, but I really didn't need him to open the carriage door. The driver and myself could have managed it between us, I'm sure.

"Well, it began to be a point of honor with both of us. I would try to dash out so quickly that the man couldn't possibly beat me, but he must have had gimlet eyes and rubber legs, because he could always see me before I came in sight and could spring to the carriage door in half a second.

"But one day—how it happened I never could tell—I reached the carriage door first, and swung it open, panting but triumphant. The man was right after me—almost on top of me—and a look of keenest chagrin came over his face as his eyes met my triumphant glance. But his confusion was only momentary, for in an instant he recovered himself, and, with a look of serenest impudence, saluted and then held out his hand for a tip, saying:

"'I *saw* you get in, sir!'"—From the *Saturday Evening Post.*

SKIMMING IT.

"If you are going to give a pan of milk, don't skim it first," the old grandmother used to say, meaning: If you are going to do a favor, don't spoil it by an ungracious word or manner. Haven't we noticed how much of this "skimming" goes on in ordinary family intercourse? asks the *Christian Uplook.*

"Another errand? I never can go down town without half a dozen commissions!" complains Bob, when his sister asks him to bring a book from the library. He never refuses to oblige her; he does not really count it an inconvenience; he only takes the cream off his kindness.

"Those gloves ripped again!" exclaims Mary, when John wants her to take a few stitches. "It seems to me they always need mending when I am in a hurry with something else." She would be shocked at his going shabby, and distressed if any one thought her unwilling to render such offices; but she makes it a little unpleasant to ask the favor.

The children follow the fashion. Tommy shuts the door at Bridget's request, but he grumbles at having to leave his top. Susie goes to the door when she is sent, but she departs with a protest that "it is Tommy's turn." Thus all day long people who love one another, and who at heart are glad to serve one another, skim the sweetness from every service they render.



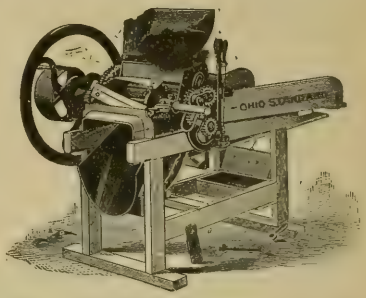
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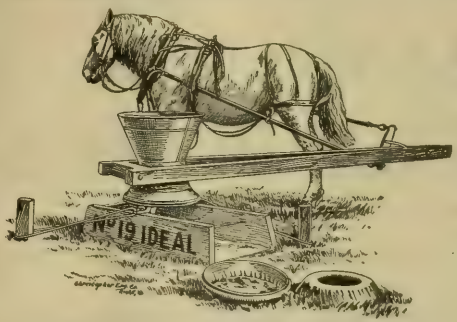
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New Cleaned Currants "	12½	All Cream Candy, 9 cts. or 3 lbs. for	25		
Four pounds New Figs	25	Xmas Candy, 9 cents or 3 lbs. for	25	Sweet Catawba Wine, per quart	10
New Citron, per lb	12	Chocolate Drops	15	Blackberry Wine	10
New Lemon Peel, per lb	12	Caramels, 9 cents or 3 lbs. for	25	Quart Bottles Imp. Port Wine	35
New Layer Figs, "	10	Stick Candy, all flavors	8	Quart bottle Sherry Wine, Imported	35
New Currants, "	12	Chewing Gum, 6 in package	1	Quart bottle Congress Whiskey	1 00
New London Layer Raisins, per lb	10	Penny Candies, box	45	Quart bottle Gin, Imported	90
Arbuckle's Ariosa Coffee per lb	12½	Sour Pickle, per gallon	20	Best Claret Wine, per gallon	50
Green Laguayra Coffee, "	10	New Mixed Nuts, per lb	11	Wine for Jelly	40
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